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MULTICOMPETENCE, MULTIPLE INTELLIGENCES AND FIRST-YEAR COMPOSITION STUDENTS

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MULTICOMPETENCE, MULTIPLE INTELLIGENCES AND FIRST-YEAR COMPOSITION STUDENTS

A Thesis

Presented to the

Faculty of

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Master of Arts

in

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Applied Linguistics and Teaching English as a Second Language

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by

Patricia Ricé-Daniels

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Approved by:

Dr. Caroline Vickers, Committee Chair, English

Dr. Wendy Smith, Committee Member

ABSTRACT

The purpose of this study is to examine, gain, and ultimately share an understanding of certain cognitive differences, similarities, intelligence patterns, and preferences between competent monolingual (English) and multicompetent bilingual/multilingual first-year composition (FYC) college students. Within this project is an attempt to address the following questions: Do monolingual and bilingual/multilingual FYC students show different strengths and weaknesses in their cognitive abilities? Are there learning preferences and literacy differences or similarities between monolingual and bilingual/multilingual FYC students?

Primarily, two cognitive concepts were used in this examination to provide perspectives and quantitative data in response to the above questions. First, is Vivian Cook's (1992, 1999) *multicompetence* theory, which involves cognitive differences between monolingual (L1) and bilingual/multilingual (L2/L3) speakers/users; and second, Howard Gardner's (1999, 2004, 2006) *multiple intelligences* (MI) theory, whereby two types of MI assessments were used to study any such differences and similarities among FYC students.

To fulfill the requirements for this particular thesis, included is a conference proposal (abstract), a conference paper, and a publishable scholarly article. The necessary charts, graphs, tables, and appendices are provided, accordingly.

ACKNOWLEDGEMENTS

With gratitude and special thanks to Dr. Caroline Vickers for her fountain of help, kindness, patience, and for giving me guidance and encouragement to do this project; also, I honestly appreciate Dr. Wendy Smith for challenging and engaging me. I am very grateful for Lindsey Chesus who maintained patience, understanding, and some stress-free guidance through the final stages of my research development.

This project is dedicated to my Mom, and my Nana – for their eternal, enduring love and boundless support that constantly surrounds me and remains deep within my heart and soul, and my multicultural anima mundi.

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Abstract

Cognitive-based developments for teaching/learning languages and writing are virtually unlimited realms of research and study. This study is an effort to dip into this realm with an exposition of cognitive approaches and perspectives involving differences and similarities between monolingual and bilingual first-year composition (FYC) students. Initially, this project was prompted by Vivian Cook's 1999 argument that some SLA educators and researchers unfairly differentiate between monolingual and bilingual/multilingual students. Hence, this project contains a conference paper with my statement of the problem, the purpose for this study, and some general background information of two featured theorists. In particular, the concepts, herein, are cognitive-based, language-based, student-based and student-centered. Also, in defense of some SLA inferences, this project involves empirical results that indicate differences and similarities of competent and multicompetent aspects among bilingual and monolingual FYC college students.

CHAPTER TWO

CONFERENCE PAPER

Multicompetence, Multiple Intelligences and First-Year Composition Students

Formulating efforts to study and understand certain cognitive diversities among first-year composition (FYC) students is a complex endeavor within second language acquisition (SLA) education and research. This is based on the multi-disciplinary nature of language learning and use, which involves linguistic, psychological, ecological/environmental, and social developments (C. Vickers, personal communication, 2014). However, deciphering levels of competence, literacy, and intelligence, for instance, can reveal alternatives to facilitate teaching/learning techniques to accommodate diverse FYC students, promote faculty awareness and a positive pedagogy, and enable students' individual language use via exposition, discourse, and rhetoric.

In an effort to, perhaps, enhance the pedagogy of those interested, especially SLA, TESOL/ESL, and composition educators and researchers, this study begins with a problem statement and purpose. I present some general background about concepts featured in this project, and particularly what inspired this study. In addition, there are definitions of terms, as well as cognitive-based and language-based theories within this study that are relative to, or pertain to the fields of composition and linguistics.

My methodology includes demographics of the FYC sample groups, plus an analysis/discussion of certain differences, similarities, and learning patterns between the sample groups based on quantitative data. Essentially, the research results or findings address these questions: Do monolingual and bilingual/multilingual FYC students show different strengths and weaknesses in their cognitive abilities? Are the monolingual and bilingual FYC students learning abilities or learning preferences different or similar?

Statement of the Problem

The problem is that often SLA researchers are biased against certain cognitive-based developments between monolingual and bilingual/multilingual students' literacy, learning abilities, language processing and usage, and especially their written language use (Cook, 1999).

Purpose of the Study

The purpose of this study is to examine and share an understanding of some cognitive aspects and learning preference patterns, which may exist between competent monolingual and multicompetent bilingual/multilingual FYC students. Again, this is an attempt to address the aforementioned questions, and more important, share and support pedagogical approaches that are culturally and socially based for FYC students.

What/Who Influenced this Study

Vivian Cooks' article, "Going beyond the Native Speaker in Language Teaching" (1999) and his *multicompetence theory* – influenced this study. In his article, Cook wrote that SLA educators and researchers believe or infer that bilingual/multilingual students are deficient, rather than cognitively different (Cook 1999). This misconception that bilingual students are deficient was what attracted or drew my interest in this project.

Howard Gardner's (1999, 2004, 2006) *multiple intelligence theory* aided my research efforts in this study. Appendix B is an edited version based on McKenzie's (1999) multiple intelligences survey (MIS). It was necessary to edit this particular MIS for the purpose of this study. Appendix C is the multiple intelligences for adult literacy and education (MIALE) assessment (Armstrong, n.d.), which was also edited to accommodate this study. Both are cognitive-based and language-based approaches employed to demonstrate whether or not competent monolingual and multicompetent bilingual students are cognitively different or similar, in general.

Brief Background of Cook and Gardner

Cook is a linguist, educator, author, and SLA researcher who introduced the *multicompetence* theory during the 1990s. A definition of his theory is provided in the next section of this chapter, and in chapter three there is a literature review of his 1999 article: "Going beyond the Native Speaker in Language Teaching".

At the Harvard Graduate School of Education, Gardner is the John H. and Elisabeth A. Hobbs Professor of Cognition and Education, Adjunct Professor of Psychology, Faculty of Arts and Sciences. His credo is: “It’s not how smart you are – it’s how you are smart!” (Gardner 1998, 1999, 2008).

Various educational institutions and school systems develop their curriculum according to the MI concept, and Gardner has schools in different parts of the US. Among his books, for this project I referenced: *Frames of Mind – Theory of Multiple Intelligences* (2004).

For more information on Gardner’s experience, education and research background, plus his assessment tools, visit the following links: https://www.gse.harvard.edu/faculty/howard-gardner, or howardgardner.com

Definitions of Terms and Developments Relative to this Study

BICS: One of the concepts described by the renowned bilingual/SLA researcher and educator, Jim Cummins (1991), is that basic interpersonal communication skills (BICS) is everyday communication. It is the outward or apparent listening and speaking skills usually learned quickly by many students. Primarily, interpersonal communication language skills are similar to or derive from a person’s first language – and acquired via interacting with native speakers (Cummins, 1991, 1994, 1999). The sociolinguistic term ‘codeswitching’, which is defined below, involves casual or informal communication among bilingual circles/communities.

Bilingual: a person who speaks two languages; natively. Either or both of the two languages were learned and used during childhood, or one of the two languages was acquired later to use in various real-life situations (Cook, 1999). For instance, one or both languages can be used in situations such as in academic environments, home environments, for independent (identity) purposes, in communities-of-practice, and speech communities (Cook, 1992, 1996, 1999; Gee, 1990).

CALP: Cognitive academic language proficiency is another concept created by researcher/educator bilingual/SLA Professor Jim Cummins (1991). This type of language skill is acquired via academic or educational environments or situations. It is "…required for meaningful engagement in most academic tasks" (Bylund, 2011, p.4). CALP is an essential part of language development within all subjects of study (Bylund, 2011; Cummins, 1991).

Codeswitching: the spoken or written use of two (or more) languages in discourse. For example, speaking in L1 and mixing in L2. This can be considered (BIC) basic interpersonal communication within certain bilingual, cultural or sociolinguistic circles.

Cultural, Emotional, and Social IQ: Each are aspects of multiple intelligences (Crowne, 2009, p. 149). Cultural IQ refers to the level of awareness/knowledge about different cultures that involve race and ethnicity including campus environment, eating, greeting, and dress customs, interpersonal space, conflict

resolution, eye contact, body language or gestures, and the tone(s) of voice (Fernandez, 2011).

Emotional IQ is "… the ability to use feelings to facilitate" thought(s) (Crowne, 2009, p. 150). Being empathetic, sensitive, and using appropriate verbal and non-verbal communication of expression. In general, the ability to interact with multiple cultures (Ibid).

Social IQ includes interpersonal and intrapersonal intelligences. It is the ability to comprehend or recognize the moods, motives, and mindset of others; and the ability to recognize/understand one's own behavior or feelings (Crowne, 2009). Also, interpreting or having knowledge of various social situations within different cultural environments; and being aware of one's own behavior in various social circles or situations (Ibid). Essentially, it is the ability to interact with others appropriately and effectively (Ibid).

Embodied Cognition: According to Dwight Atkinson (2010), this approach is associated with SLA studies; the concept is based on our innate mental abilities and behavior; and being "…grounded in bodily states and action" (2010, p. 599). For instance, the learning preferences or intelligence strengths that can fall under this approach are: bodily-kinesthetic, intrapersonal, musical-rhythmic, and verbal-linguistic. Embodied cognition is biological, cultural, and "action-oriented" (2010, p. 604), and interacts with extended cognition, which is defined next.

Extended Cognition: Another SLA related approach by Atkinson (2010) involves our cognitive environment. For instance, our mind or mental capacities

are linked to the world and immediate surroundings, ecologically or environmentally. An example of this concept can be an aspect of Albert Bandura's (1971, 1977) *social learning theory* (SLT), or the act of mimicking others based on perception or simulation. More pertinent examples involve intelligence strengths such as existential, interpersonal, mathematical-logical, naturalist, visual-spatial, also, verbal-linguistic.

Mean: A measure of central tendency; an arithmetic average of all scores. This is a calculated total sum of numbers that is divided by the sum of 4 or more scores. This term is used in quantitative research reports, and is essential to the interpretation of results in which groups are compared with each other (Christensen, Johnson & Turner, 2011).

Mode: Another measure of central tendency, and frequency, which is a score that occurs most frequently in a distribution. For example, it is a term used to describe the frequency of a score or scores (Christensen, Johnson & Turner, 2011).

Monolingual: a person who speaks/uses one language; a native (L1) speaker of one language whose language use is their primary discourse learned during childhood (Cook, 1999, 2001).

Multicompetence: a theoretical term coined during 1991 by educator and linguist, V. Cook. This term distinguishes a person who possesses the knowledge and cognitive ability to speak and use more than one language via mental and social activities or aspects (Cook, 1992, 1996, 1999, 2001).

Multilingual: is more than two languages spoken or used, and learned during childhood, as a teenager or adult. The third, fourth, fifth or more languages could have been acquired under similar real-life conditions as the bilingual learner/speaker/user (Cook, 1999).

Multiple Intelligences (MI): a concept developed by H. Gardner in the 1980s (Gardner, 1999, 2004, 2006). This involves a person's cognitive competence, abilities, talents, or mental skills. Based on Gardner's theory, there are eight, and sometimes, nine levels or frames of intelligence: naturalist/physical world, musical/rhythmic, logical/mathematical, interpersonal/social, intrapersonal/introspective, bodily/kinesthetic, verbal/linguistic, and visual/spatial. The ninth, existential/spiritual intelligence is not a commonly referenced category; however, in this study, it is included in one of the two MI surveys. The following are descriptions of each level of intelligence according to: Gardner (1999, 2004, 2006); J.A. Morgan and C. Fonseca (2004); and W. McKenzie (2009).

- Naturalist – enjoys the outdoors, animals, road trips, and field observations. Writing interests may lie in expositions or descriptions of environmental developments and ideas, displaying intelligence or sensitivity in various parts of the world, the natural world, and scenes in nature. Some naturalists display *extended* cognitive (Atkinson, 2010) abilities, which involve connecting to or developing ecological awareness, and certain external or grounded environmental-type activities. Naturalists tend to pick up on subtle differences in meanings or natural occurring

patterns in various types of studies. They can ascertain and learn best via classifications, categories, compare and contrast, details, arrangements, sequences, files, indexes, chronicles, logs, maps, charts and graphs (McKenzie, 2009).

- Musical-Rhythmic – is the ability to appreciate various rhythms, pitches, pulses, melodies, and identify a range of patterns via all the senses, especially auditory. Based on *embodied* cognition, various musical-rhythms activate the senses of the brain's language areas (Atkinson, 2010). Many people can learn best via songs, patterns, rhythms, instruments, and musical expression (Gardner 1998, 1999, 2008). Listening to music while writing can stimulate creative thought processes, the memory, and enhance connecting with inner-self. Music can be relaxing, and yet, a motivating and productive approach for teaching/learning in a multilingual classroom.
- Mathematical-Logical – displays an aptitude for numbers and sequences; also problem-solving and reasoning strategies are important aspects with teaching/learning (Morgan & Fonseca, 2004, p. 127). This intelligence strength, or *extended* cognition (Atkinson, 2010), enables conceptualizing thoughts, and the capacity to manipulate logical symbols. Interests or cognitive development in science related materials and topics including experimental activities and analogies are present. Favorite activities

involve investigating, calculating, quantifying, measuring, web-quests, spreadsheets, and programming languages (McKenzie, 2009).

- Interpersonal – is the ability to understand people, to effectively communicate and work well in groups such as speech communities, and communities-of-practice. Cooperative learning can be the best method to facilitate literacy, learning a second language, and to promote writing (Morgan & Fonseca, 2004). The strong elements with this intelligence involve a socializing approach and a diverse collective approach via teaching/learning.
- Intrapersonal – is a realization of internal aspects, it means being self-cognizant, or being metacognitive. This intelligence-type tends to maintain self-discipline, self-motivation, self-perception, and can identify or reflect personal emotions. In other words, students of this nature might be in touch with their own feelings, values, and ideas (Gardner 1998, 1999, 2008); and typically, they appear to be loners who can be reserved or an introvert with a modest personality. As students, their talents may involve writing fiction, nonfiction, poetry, songs or music, commentaries, and journals (Fogarty & Stoehr, 2008).
- Verbal-Linguistic – means the ability to learn via spoken words or utterances, and written material. This *embodied*/*extended* cognition (Atkinson, 2010) is the traditional sociocognitive approach and method used in classrooms to determine achievement, expression, and aptitude.

Basic or advanced language arts such as speaking, writing, reading, and listening are the demonstrated strengths including interests in languages, word games, active communication or discourse, speeches, debates, and storytelling (Fogarty & Stoehr, 2008).

- Visual-Spatial – is an *embodied* cognition (*Ibid)* that involves elements such as forms, shapes, lines, spaces and colors, which are essential to form or produce various mental images. Mental images exist within thoughts and have a significant influence on reasoning (Morgan & Fonseca, 2004, p. 126), creativity, productivity, and problem-solving. Seeing what is being talked about or discussed aids comprehension for taking notes and writing projects. Visual teaching tools include charts, graphs, tables, illustrations, pictures, drawings, slides, posters, and videos (Gardner, 1998, 1999, 2008; Morgan & Fonseca, 2004, p. 127).
- Bodily-Kinesthetic – with this intelligence, the body or physical objects are used as an expressive approach. This is in direct connection to *embodied* cognition (Atkinson, 2010), which means behavior and mental abilities are grounded in bodily states and actions. Moreover, where *extended* and *embodied* cognitions work together to link experience and comprehension with the world via our bodies (*Ibid*). Interests in health, fitness, sports, and hands-on, tactile activities are common (Morgan & Fonseca, 2004). Also, this intellectual ability is among dancers, actors, singers, musicians, and mimes including various kinds of engineers, firemen, doctors and nurses.

Plus, anyone who assembles, builds, creates, or makes instruments, and anything that requires non-verbal actions and interactions are realistic aspects (Gardner, 2004) .

- Existentialist – was the least considered intelligence-type until Gardner's developmental research studies deemed this cognitive profile a valuable classification to recognize in the classroom (Morgan & Fonseca, 2004). This type holds levels of merit because it involves interests in human existence, the human factor, the meaning of life and death. For instance, this is where people/students might question their place in society; wonder about their identity or who they are; ponder their connection in the real-world or about life, in general. There might be a propensity for assessing or inquiring, appreciating or critiquing astronomical/cosmic or various philosophical topics. The teaching/learning approaches and qualities may be associated with or driven by achieving an understanding of world views, the global community, the different sciences, and spirituality/theology – to somehow apply to new learning interests and methods (Fogarty & Stoehr, 2008; McKenzie, 2009).

Overview of Research Methods and Findings

Essentially, the focus of this research study is to disprove the biased opinions of some SLA educators/researchers involving bilingual students. The following will illustrate that the cognitive-based abilities and intelligence-types of

bilingual FYC students are just as competent as monolingual FYC students. In fact, bilingual students are multicompetent, based on Cook's (1999) theory.

To begin, a total of 238 FYC students were surveyed via IRB approval (see Appendix A) at California State University, San Bernardino (CSUSB), which included 51 monolingual and 187 bilingual/multilingual, as illustrated below in Table 1-A.

Table 1-A: Monolingual and Bilingual/Multilingual FYC Sample Groups

		Frequency	Percent	Valid Percent
Valid	1 Monolingual	51	21.4	21.4
	2 Bilingual/Multilingual	187	78.6	78.6
	Total	238	100.0	100.0

It is important to point out that CSUSB is a minority serving institution (MSI), which includes it's distinction as a Hispanic Serving Institution (csusb.edu/HSI). As a result, the above table reflects there are more bilingual students than monolingual students, especially in FYC courses. Therefore, the sample groups were unequal in number because it was impossible to get equitable representation at this HSI.

Batched files were created in IBM's *Statistical Package for the Social Sciences* (SPSS) to compute and sort the participants into two sample groups, according to their selected and indicated languages. In addition, to quantify the cognitive-based data, SPSS was used to produce the tables and charts in this study. More important, SPSS provided the necessary quantitative data of the sample groups cognitive strengths, weaknesses, differences, and similarities.

According to the MIS results, the 9 intelligence-types with the strengths and weaknesses of both sample groups were determined, as shown on below in Figure 1. Line Graph 1-1: MIS Modes.

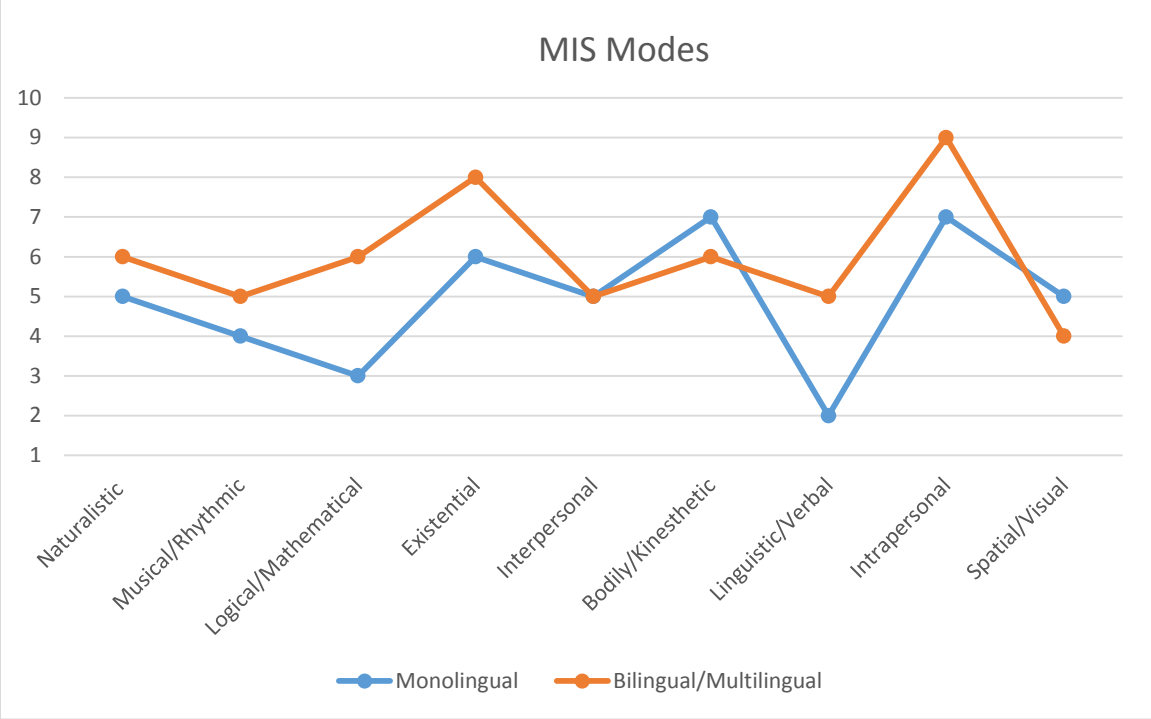

Figure 1. Line Graph 1-1: MIS Modes

In the above line graph, there is a noticeable difference in the modes between the monolingual and bilingual groups in their logical/mathematical and linguistic/verbal intelligence-types. The monolingual group appears weak in the logical/mathematical area, and weaker in the linguistic/verbal intelligence-type. In both of these intelligence-types, the bilingual group shows some strength.

Notice the mode differences in the existential and intrapersonal types between the groups: the bilingual group is strong in existential intelligence, and

stronger in the intrapersonal intelligence-type. The monolingual group is fairly strong in the existential area, and a bit stronger in the intrapersonal type; however, the monolingual group is a bit weaker than the bilingual group in these two intelligence-types.

Each group's mode frequency is close in the naturalistic, musical/rhythmic, bodily/kinesthetic, and spatial/visual intelligences. But note how the bodily/kinesthetic and spatial/visual monolingual modes are just above the bilingual modes. The interpersonal intelligence-type is the only area where both groups have virtually the same or equal mode frequency.

Essentially, the range of modes from noticeable to subtly different or similar, and whether stronger or weaker – the cognitive qualities between the sample groups in the above Figure 1. Line Graph 1-1 illustrates that by nature, each of us, whether monolingual or bilingual have levels of different and similar cognitive abilities and intelligence-types.

Keep in mind, these strong or weak differences and similarities exist even though the sample groups are unequal in number. This is verifiable via the reliability and validity of the MIS assessment (McKenzie, 1999) used in two former quantitative studies. The studies are the following: The relationship between EFL learners' multiple intelligences and their performance on reasoning-gap writing tasks, by Mahnaz Saeidi and Fahimeh Karvandi (2014); and, the relationship between EFL learners' multiple intelligences and their performance on information-gap writing tasks (M. Saeidi & F. Karvandi, 2014). Both studies

were published in the *International Journal of Language Learning and Applied Linguistics World* (IJLLALW). The reliability and validity of both studies MIS score results were supported via Cronbach's Alpha. The reasoning-gap writing study had a calculated correlation average of .81; and the information-gap writing study had a calculated correlation average of .86. This verified the MIS (*Ibid)* model and the calculated results in each of these studies had a high measure of consistency or reliability and validity.

Next are the results of the MIALE (Armstrong, n.d.) assessment, which were employed in this study to address the questions: What are the FYC students learning abilities, literacy, or intelligence patterns? Are the monolingual and bilingual FYC students learning abilities or learning preferences different or similar?

The following Figure 2. MIALE Bar Chart 1-2: Mean/Mode Calculations is a condensed version of the FYC students' responses. Most of the statements in this assessment were edited to accommodate and facilitate the FYC ESL (English as a second language) students including dyslexic students, et al. This chart is in the form of a 5 point bar chart with the results of mean/mode calculations and distribution.

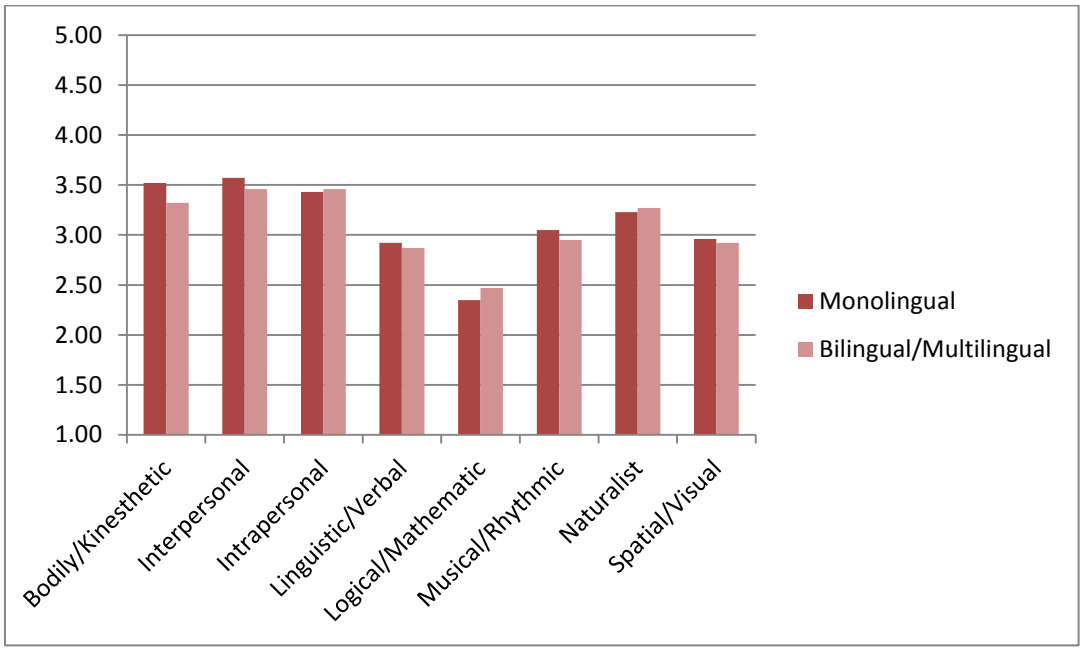

Figure 2. MIALE Bar Chart 1-2: Mean/Mode Calculations

As you can see, (and if this is viewed on a computer, you can simply place the cursor on each bar), the above bar chart reveals the average values of each sample groups' intelligence-types. The bar levels show differences and similarities between the monolingual and bilingual sample groups. Each cognitive strength, weakness and learning preference is measured in mean/mode values.

According to the above chart, there is a slight value difference between the sample groups in the bodily/kinesthetic preference; and a slightly smaller difference in the interpersonal preference between the sample groups. The intrapersonal values are quite similar between the sample groups. This kind of intelligence displays a pattern of similar preference with the bodily/kinesthetic and interpersonal intelligences.

The linguistic/verbal values are similar and not quite preferred among the sample group members; and the logical/mathematic values are slightly different and the least preferred of the other intelligences. Musical/rhythmic shows a subtle difference, and is a bit moderately preferred. The naturalist intelligence has similar values, and it is a bit more than moderately preferred. Last, is spatial/visual, which is similar between the sample groups, and less than moderately preferred.

It appears the bodily/kinesthetic, interpersonal and intrapersonal including naturalist intelligences suggests the sample groups share a similar literacy pattern. Both groups share the same four intelligence-types of cognitive aspects for learning preferences, as well.

Essentially, this exhibits via teaching and learning that we exercise or use a combination of different and similar strengths from our intellectual domains (Barrington, 2004; Gardner, 2004). However, monolinguals and bilinguals “share the same mental lexicon” (Cook, 1992, p. 557). In other words, whether bilingual or monolingual, FYC students are aware of their own language use. How language is processed depends on each student’s cognitive capacity, metacognition, embodied and extended cognition and intellect. Students’ cultural, emotional and social aspects must be considered, as well.

Conclusion

Ultimately, FYC monolingual and bilingual students are more similar than different. According to the collective MIS survey results in this chapter, both sample groups share similar midpoint or mean scale modes in naturalistic, musical/rhythmic, interpersonal, bodily-kinesthetic and spatial/visual intelligences. In the logical/mathematical and linguistic/verbal intelligences, the sample groups are quite different. The remaining areas: existential and intrapersonal appear to be strong areas for the sample groups.

The compressed MIALE results reveal the sample groups have subtle differences in the literacy and learning preferences of the eight intelligences. Essentially, of the eight intelligences: bodily/kinesthetic, interpersonal, and intrapersonal are the highest on the scale for both sample groups. This shows their patterns of literacy, cognitive abilities, and learning preferences are similar in these intelligence areas.

Despite some SLA educators and researcher's negative inferences about bilingual/multilingual students language processing, usage, and especially their written language (Canagarajah, 2006; Cook, 1999), competent and multicompetent FYC students share more similar than different cognitive-based, language-based abilities, and patterns of literacy and intelligence including learning preferences. Albeit, bilinguals thought processing and use of rhetoric can be deemed different, this is partially what constitutes their multicompetence, not their deficiency.

In higher education, access, acknowledgement, and accountability of certain liberal studies, for instance, are the implications associated with multiple intelligences (Kezar, 2001). However, from a fundamental perspective, a diverse curriculum is important to consider because new developments, learning interests, and readiness levels are paramount for efficacy, motivation, plus, cultural and social awareness. It is necessary for SLA educators and researchers to adapt to an ever changing ESL environment, which requires nontraditional measures and approaches. To meet the needs of FYC students via inclusive pedagogy, postsecondary educators can perhaps determine: not how intelligent students are – but how students are intelligent.

CHAPTER THREE

JOURNAL ARTICLE

Abstract

Multicompetence is a knowledge and language-based linguistic concept and description of bilingual/multilingual students (Cook, 1999); and Gardner's prominent cognitive-based, literacy, and social-based *multiple intelligences* theory is associated with Cook's concept and description in this project. Unfortunately, however, there is a biased belief among some second language acquisition (SLA) researchers that involve particular cognitive and intelligence aspects between monolingual and bilingual/multilingual student's literacy, learning capabilities, use of rhetoric, and especially their writing abilities (Canagarajah, 2006; Cook, 1999; Matsuda, 1999; Valdés, 1992). In this project, the *multiple intelligences* concept and two of its assessment tools are used to quantify this SLA predisposition by addressing the following questions: Do monolingual and bilingual first-year composition (FYC) students have different or similar strengths and weaknesses in cognitive qualities? Are the learning abilities or learning preferences different or similar between monolingual and bilingual FYC students? Essentially, the surveyed data of 238 monolingual and bilingual FYC students revealed that they share multiple intelligence-types, and they have diverse cognitive/intelligence strengths and weaknesses in notable

areas. In addition, there are particular intelligence-types in which they show similarities in literacy aspects and interests.

… I know ten thousand women

called Jane and Mary Jane,

but I've not seen any two

who really were the same…

… I note the obvious differences

between each sort and type,

but we are more alike, my friends,

than we are unalike.

We are more alike, my friends,

than we are unalike. (Angelou, 1994, pp. 224-225)

Introduction

Within areas of composition/writing studies and second language acquisition (SLA) research and education—are two notable and valid developments: Vivian Cook's *Multicompetence* theory and Howard Gardner's *Multiple Intelligences* theory (MI). Cook's concept involves the differences between monolingual (native speakers/L1) and bilingual/multilingual students (L2/L3 learners/speakers). Gardner's MI theory is a model approach that reveals areas or types of competences or intelligences between monolingual and bilingual learners/speakers including their strengths, or motivations, and weaknesses.

The purpose of this study is to examine, gain, and share an understanding of certain cognitive differences, similarities, and intelligence patterns between competent monolingual and multicompetent bilingual/multilingual first-year composition (FYC) students. Hence, this study will attempt to address the following questions: Do monolingual and bilingual FYC students show different or similar strengths or weaknesses in cognitive abilities? What are the FYC students learning abilities, literacy, or intelligence patterns? Are the monolingual and bilingual FYC students learning abilities or learning preferences different or similar?

I believe the above questions are efforts to research certain types of cognitive developments that will aid the fundamental demands of bilingual/multilingual FYC students. This is primarily because some educators

and linguists deem there are major differences between L1/monolingual and L2/bilingual or multilingual students (Cook, 1999). For instance, students who are L1 and L2 speakers/users have different cognitive strengths and weaknesses because they process and use language differently (Cook, 1999, 2001; Gardner, 2004, 2008; Maftoon, P. & Sarem, S. N., 2012; Morgan, J. A. & Fonseca, C., 2004; et al.).

Cook (1999) identifies L2 users as *multicompetent* because they, in fact, have multiple language repertoires that influence their ways of thinking and communicating. Considering the diversity of students in FYC courses, and in light of such findings that demonstrate cognitive and communicative differences do exist among multicompetent students—it is important to study the scopes of intelligences between L1 and L2 student speakers, and how such differences can apply to writing instruction.

It is necessary for instructors to gain awareness of such differences to engage, encourage, and facilitate inclusive language use in diverse composition/writing settings (M. Bucholtz, October 23, 2014). Hence, this study will provide an empirical perspective via relative concepts—in accordance with the ongoing development of innovative methods to understand FYC students cognitive activity in writing courses, including awareness of contrastive rhetoric.

Prior to the methodology and data analysis, which include the results of my research in addressing the aforementioned questions, this study begins with a literature review of Cook's (1999) article: "Going beyond the Native Speaker in

Language Teaching" – which influenced this project. Also, expositions of what I deem are relative to *multicompetence* involve certain cognitive theories and Gardner's MI.

Literature Review

Multicompetence

V. Cook's (1999) "Going beyond the Native Speaker in Language Teaching" is a qualitative argument that provides a distinctive perspective about his *multicompetence* concept relative to language educators and students. The scope of his assertions include that monolinguals and bilinguals are different because bilinguals have diverse or multiple levels of competence and cognitive abilities. Bilinguals are not "deficient native speakers" (p. 185) or 'at-risk' students. They simply process language differently than native speakers. He suggests using L1 knowledge-based teaching/learning alternatives to accommodate the needs of bilingual/multilingual students.

Essentially, Cook's research orientation is critical and interpretive because he provides definitions of competent monolinguals or native speakers and multicompetent bilingual speakers. He contrasts the differences between monolingual and bilingual learners, speakers, and users including the differences between target language (TL) learners and users.

Cook's theoretical framework is focused developmentally and psychologically—and intentionally directed at SLA educators and researchers

because, among various characteristics, they typically relate and compare bilingual learners and users to native speakers. Via pragmatic examples in Cook's empirical study, he describes a relationship between his theory and SLA research. For instance, multicompetent speakers/users are able to interpret or translate from one language to another (p. 186), which means their thought processes are different. Based on the "interlanguage hypothesis" (p.189) and via SLA research, the acquisition of native speakers and bilinguals have their own distinctive language system features (p. 189). Multicompetence "…implies that at some level the sum of the language knowledge in the mind is relevant" to facilitate comprehension, interpretation, and usage (p. 190).

Among other differences within Cook's qualitative argument are some general issues that SLA researchers differentiate between L1 and L2 speakers/users. Such implications include the differences between L1 and L2 speakers/users short/long-term and working memory abilities. Some researchers deem that L2 speakers/users "…are slightly less effective at language-related cognitive tasks…"; their long-term memory of information is "less efficient" via traditional lecture (auditory) instruction; and L2 speakers/users "…working memory span… is usually slightly below the L1 [speakers/users] level at all stages…" (p. 193). In any case, it is not surprising or unknown that some SLA educators/researchers believe bilinguals differ from monolinguals on cognitive and intelligence levels.

Multicompetent learners, speakers, and users "…who speak [or write] differently from some arbitrary group are not speaking [or writing] better or worse, just differently" (p. 194). Practically "…all teachers and researchers would agree that a comparison between groups [or individuals] yields differences, not deficits" (p. 194). Hence, Cook challenges the stereotypical labels and inferences associated with bilinguals; and he criticizes the treatment of accomplished bilinguals who have been linguistically discriminated against.

Among those Cook references to support his challenges and criticism are Grosjean's (1989) theory that involves "*monolingual* and *bilingual modes*" (p. 193), or codeswitching; also, Milroy and Muyskens (1995) regarding the language abilities and aspects of bilinguals/multilinguals (p. 193). He explains fundamental characteristics of bilinguals which include mixed utterances or codeswitching, and especially differences in grammatical judgment, choice or manner of exposition, and syntax structure (Connor, 2002; Cook, 1996; Lisle & Mano, 1997; et al.).

Within Cook's qualitative argument are inferences that SLA researchers and educators unfairly differentiate between monolinguals and bilinguals. Again, such SLA implications include what Cook indicates as differences in the thought processes of bilinguals. For example, Cook deems multicompetent speakers/users as knowledge-based individuals because bilinguals have knowledge of more than one language. Such processes include dubbing or identifying objects, and understanding content, interpreting context, or

comprehending instructions within text (p. 193). Also, it is common for bilinguals to produce what some educators consider incorrect sentences, or inaccurate grammar use in comparison to native speakers/users.

The minds of bilinguals can differ from the minds of monolinguals in ways other than sheer knowledge of language (p. 193). For instance, such differences to be considered can involve cultural, psychological, and social aspects or variables including environmental conditions. In an effort to meet the cognitive diversity and identity/individual aspects of multicompetent students, Cook recommends a couple of L1 knowledge-based alternatives or models to facilitate bilingual language learning and use. The alternative instructional methods include Community Language Learning (CLL) for TL purposes, and the "New Concurrent Method" (p. 201) which promotes codeswitching and "codemixing" (Alpetkin, 2010, p. 96). Other "*cross-lingual*" (p. 202) communicative approaches that focus on translations and grammatical structure are described. Each of Cook's knowledge-based instructional suggestions are student-based, student-centered with real-life applications and practices to deliberately involve bilinguals. H.H. Stern (1983), R. Quirk (1990), and J. Harmer (1991) are among the sources Cook cited to support his L1 knowledge-based teaching/learning alternatives.

Despite some SLA researchers and educator's implications (Cook, 1999), Cook's ideology is driven by the views of bilingual multicompetence and cognition within areas of ongoing SLA research. His concepts and teaching/learning alternatives have fueled diverse levels of awareness and perspectives in

ESL/EFL education and methodologies (Alptekin, 2010; Halasa & Al-Manaseer, 2012; Hall, Cheng & Carlson, 2006; Ovando, Combs & Collier, 2006).

Cognitive Aspects that Link Multiple Intelligences and Multicompetence

Cognition

As indicated early on, the purpose of this study is to examine, share, and gain an understanding of certain cognitive differences, similarities, and intelligence patterns and preferences between competent monolingual and multicompetent bilingual FYC students. Based on research concerning certain types of cognitive-based developments, the following is a definition and exposition of cognitive approaches that pertain to this study.

Cognition is the development and processing of knowledge, language; that which is acquired, conceived, perceived intuitively, via sensory, and intuition. Cognition is reasoning, short/long/working memory; and it is the processing of information and communication sometimes consciously or unconsciously. It is the wherewithal of competence, intelligence, multicompetence, and multiple intelligences.

In reference to SLA research, Atkinson (2010) describes cognition in a two-fold manner. First, cognition is *extended* ecologically; it is intertwined with the environment. Secondly, *embodied* cognition is considered “cognitive activity as grounded in bodily states of action” (p. 599). For example, *embodied* and *extended* cognition can be associated with aspects of intelligence that many of

us possess. Based on Gardner's theory (2004, 2006), such cognitive aspects or attributes of intelligences are: bodily/kinesthetic, interpersonal, intrapersonal, mathematical/logical, musical/rhythmic, naturalist, verbal/linguistic, visual/spatial, and existential.

In regard to Cook's theory (1999), and according to J. K. Hall, A. Cheng, and M. T. Carlson (2006), the initial proposal of the *multicompetence* theory was denoted as a unique state of mind based on the cognitive differences between monolinguals and bilinguals. Hence, linguistic cognitive abilities are analogous with multicompetence aspects. Essentially, cognition is the crux of linguistic multicompetence (Ellis & Cadierno, 2009).

As previously indicated, the cognitive properties of bilinguals are qualitatively different from monolinguals via a complex internal and external process system. However, like L1 speakers, L2 speakers use their innate cognitive abilities to process and use language too (Cook, 1999; Ovando, Combs & Collier, 2006). Essentially, L2 speakers/users thoughts are stimulated and processed via their innate and conscious perception of cultural, emotional, and social including environmental conditions. This means bilinguals/multilinguals must apply multiple cognitive strategies and skills in language learning and use. For instance, Ellis and Cadierno (2009) compiled an empirical study where they signified: "Language is intrinsically linked to the human cognition and processes of perception, attention, learning, categorization, schematization, and memory"

(p. 111). Suffice it to say, this involves varied levels of meta-cognitive, multi-cognitive abilities among bilinguals and multilinguals.

Therefore, theoretically, cognitive or multi-cognitive (extended and embodied cognition) are relative descriptions of intelligence and multiple intelligences. Further, cognition is linked to competence, and multi-cognition is relative to *multicompetence*. Additional explanations of such aspects are continued within the next section on the *multiple intelligences* theory.

Therefore, as a result of L2 speakers/users *multicompetence* and diverse cognitive abilities—the *multiple intelligences*, or MI approach and assessments were applied or employed among monolingual and bilingual FYC students to analyze their thought processes, literacy, and learning preferences.

Multiple Intelligences

Gardner's MI theory is a pluralistic approach to alternative and traditional educational concepts (Gardner, 2004, 2006). It involves developmental, physiological, and psychological differences and similarities among students, which in this case include FYC monolinguals and bilinguals. On various levels, MI ties in or relates to Cook's theory, as it relates to cognizable differences and similarities between monolinguals and bilinguals, plus, SLA research and education. Moreover, MI proposes alternative methods to analyze and accommodate student diversity based on competence and cognitive abilities, skills, and individual interests.

Primarily, the purpose for Gardner's concept is to explore, study, and reveal the cognitive competence of humans. In other words, to understand and establish the different sets of abilities and mental skills among human beings, which are normally referred to as *intelligences* (Gardner, 2006, p. 6). Each individual possesses various degrees or extents of abilities and skills; and, of course, each individual differs in their own degree of skills, behaviors, and innate capabilities. Intelligence is a combination of inborn, embodied, ecological, cultural, emotional, and social attributes or faculties of individuals—that make us who we are. Such attributes and aspects determine how humans process information, or specifically, language-based information.

Gardner postulated cognizable assessment models based on his theory, which are used in this study to determine, identify, and reveal aspects of cognitive properties and learner-based competencies and multicompetences. Gardner's MI assessments are used to analyze certain cognitive differences, similarities, literacy patterns, and learning preferences including the strengths and weaknesses of bilingual and monolingual FYC students.

The multiple intelligence adult literacy and education (MIALE) (Armstrong, n.d.) assessment involves 8 intelligences: verbal/linguistic; logical/mathematical; spatial/visual; musical/rhythmic; bodily/kinesthetic; interpersonal; intrapersonal; and naturalist. McKenzie's (1999) multiple intelligence survey (MIS) involves 9 intelligences, which include the aforementioned 8, plus the 9th one: existentialist.

Methodology

FYC Participants/Sample Groups

Recruitment for the surveys took place at California State University, San Bernardino (CSUSB), in credit-bearing stretch/multilingual beginner, intermediate, and advanced FYC English courses. Before beginning the quest for sample groups, it was necessary to complete the Institutional Review Board (IRB) application process and gain approval to conduct this study at CSUSB (see Appendix A).

Upon receiving IRB approval, I sought the permission of approximately 10 to 12 instructors who taught stretch/multilingual beginner, intermediate, and advanced FYC English courses at CSUSB. With the consent of each instructor, I began the recruitment process to conduct surveys in about 14 or 15 FYC classes that averaged 15-20 monolingual and bilingual students. Each student was assured of their anonymity, and consented to participate in the surveys. McKenzie's (1999) MIS (see Appendix B) was edited to include questions for the necessary data to create the tables, charts, and graphs in this study. Data was collected from a total of 238 FYC students, which included 51 monolingual and 187 bilingual/multilingual, as illustrated below in Table 1.

Table 1: Sample Groups

Sample Groups	Subtotals	Percent	Valid Percent
1. Monolingual	51	21.4	21.4
2. Bilingual/Multilingual	187	78.6	78.6
Total FYC Students	238	100.0	100.0

As previously indicated, the sample groups are FYC students who attend CSUSB, which is a MSI/HSI (csusb.edu/HSI). This means there are more bilingual students than monolingual students in most courses, especially in FYC courses. Therefore, the sample groups, as illustrated in Table 1, are unequal in number because it is impossible to get equitable representation at this university.

Below, in Table 2: Ages of Sample Groups, the participants age groups ranged from 18 to 32. Nearly half the number of students, or the approximate mean percentage was the age of 18. Listing their age was necessary because the participants must be 18 years of age or older, in accordance with IRB guidelines.

Table 2: Ages of Sample Groups

Ages		Subtotals	Percent
Valid	18	112	47.1
	19	81	34.0
	20	18	7.6
	21	8	3.4
	22	6	2.5
	23	5	2.1
	24	2	.8
	25	3	1.3
	27	1	.4
	28	1	.4
	32	1	.4
	Total	238	100.0

All except two of the participants selected and indicated their ethnicities on the MIS (see Appendix B), which are listed in the next Table 3: Ethnicities of

Sample Groups. Totals of what was designated are as follows: 9 African Americans, 2 Black Americans, 28 Latin Americans, 94 Hispanics, 3 Filipinos, 1 Puerto Rican, 3 Asian Americans, 10 Chinese, 1 Japanese, 2 Koreans, 13 Arabs, 2 East Indians, 1 Middle Eastern, 20 White Americans, 47 others are biracial/multiracial, and 2 undesignated.

*Table 3: Ethnicities of Sample Groups

Ethnicities	Subtotals	Percent	Valid Percent
African American	9	3.8	3.8
Black American	2	.8	.8
Latin American	28	11.8	11.9
Hispanic	94	39.5	39.8
Filipino	3	1.3	1.3
Puerto Rican	1	.4	.4
Asian American	3	1.3	1.3
Chinese	10	4.2	4.2
Japanese	1	.4	.4
Korean	2	.8	.8
Arabic	13	5.5	5.5
East Indian	2	.8	.8
Middle Eastern	1	.4	.4
White American	20	8.4	8.5
Other	47	19.7	19.9
Total	236	99.2	100.0
Missing	2	.8	
Total FYC Students	238	100.0	

*Table 3 is a record of the ethnicities students selected and listed.

To distinguish the sample groups, the edited MIS (McKenzie, 1999) questions required each student to select and indicate first (or L1), second (or L2), and third or other languages spoken/used. The following charts display the

native and second languages of the sample groups. Please review Figure 3. Pie Chart 1-3: First/Native Languages; and Figure 4. Graph Chart 1-4: Second or Other Languages.

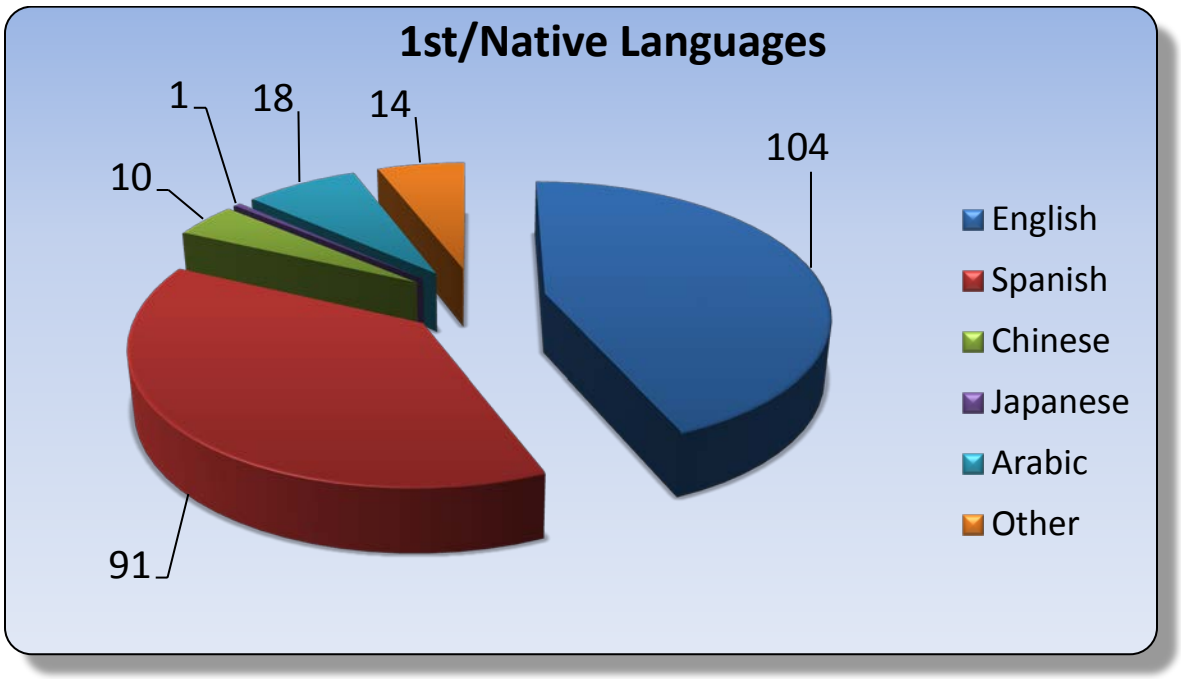

Figure 3. Pie Chart 1-3: First/Native Languages

Of the 238 FYC college students, 104 selected English as their first/native language, 91 selected Spanish as their first/native language, 18 chose Arabic as their first/native language, 10 chose Chinese as their first/native language, 1 student's first/native language was Japanese, and 14 FYC students noted various other languages as their first/native language (Farsi, Hindi, German, Tagalog, and West Indies Creole, et al.).

In the following Figure 4. Graph Chart 1-4: Second or Other Languages, 135 FYC students listed English as their second or third language, 46 listed

Spanish as their second or third language, French was the second or third language of 8 students, Korean was the second or third language of 1 student, 3 students noted Japanese as their second or third language, 4 students noted Arabic as their second or third language, and 13 students indicated a variety of other second languages (Farsi, Hindi, Tagalog, Afrasian languages, and other French-based, Spanish-based dialects).

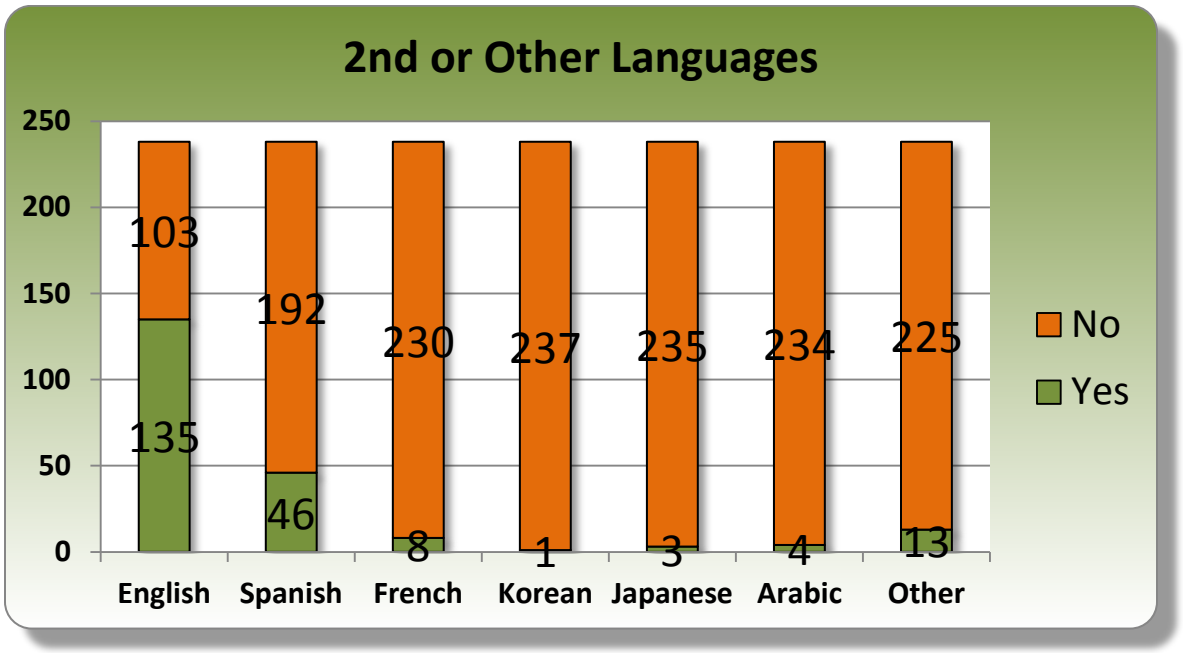

Figure 4. Graph Chart 1-4: Second or Other Languages

Materials and Data Software

In accordance with the IRB, the recruitment process included the distribution of consent forms that had to be read, discussed, restated, understood, and signed by each participant. Immediately afterward, two cognitive-based model assessments were distributed to each participant. As

previously indicated, an edited version of Gardner's MIS (McKenzie, 1999) was also used to learn particular demography of the sample groups. The second assessment is a model based on Armstrong's (n.d.) multiple intelligences for adult literacy and education (MIALE) (see Appendix C). Several, or more, statements/questions in this assessment were edited to facilitate the FYC ESL students.

IBM's *Statistical Package for the Social Sciences* (SPSS) was used to compute and sort the participants into sample groups according to their indicated languages. Essentially, to quantify the cognitive-based data, SPSS was used to create all of the tables and charts in this study. More important, SPSS provided the necessary quantitative data of the sample groups cognitive strengths, weaknesses, differences, and similarities including intelligence patterns. All data from the MIS and the MIALE were entered in formatted SPSS batched files.

Data Analysis and Procedures

Among the data entered in SPSS, illustrated throughout this study, two primary types of data were extracted: first, a set of data based on the 9 levels of the MIS (McKenzie, 1999) to determine intelligence-types and cognizable qualities; and the second set of data was compiled from the MIALE (Armstrong, n.d.) assessment into 5 point Likert-type scales to ascertain differences and similarities in learning/literacy abilities, patterns, and preferences.

I examined the SPSS distribution of each item of the MIS (McKenzie, 1999) to see how monolingual and bilingual participants tended to respond to

these items. To do this, the mode of each item for both groups' was calculated and their responses were compiled. The appropriate statistical tests were run to compare the modes and check for statistical significance, reliability and validity.

In addition, the responses were compiled in SPSS from each item of the MIALE (Armstrong, n.d.) for the monolingual and bilingual sample groups to find the modes for both groups. Based on the responses, the appropriate statistical tests were run to compare modes and for statistical significance, reliability and validity between monolingual and bilingual/multilingual sample groups on the MIALE (Ibid).

Findings and Discussion

The results of the MIS (McKenzie, 1999) and the MIALE (Armstrong, n.d.) illustrate and provide information regarding whether monolingual and bilingual FYC students show different or similar strengths and weaknesses in intelligence-types or cognitive abilities. What are the FYC students learning abilities, literacy, or intelligence patterns? Are the monolingual and bilingual FYC students learning abilities or learning preferences different or similar?

According to the MIS (McKenzie, 1999) results, the strong and weak areas, also identified as modes of the 9 intelligence-types were determined of both sample groups, as shown below in Figure 5. Line Graph 2-5: MIS Modes. Primarily, this line graph was compiled to address the first question in this study: Do monolingual and bilingual FYC students show different or similar strengths and weaknesses in cognitive qualities/intelligence-types?

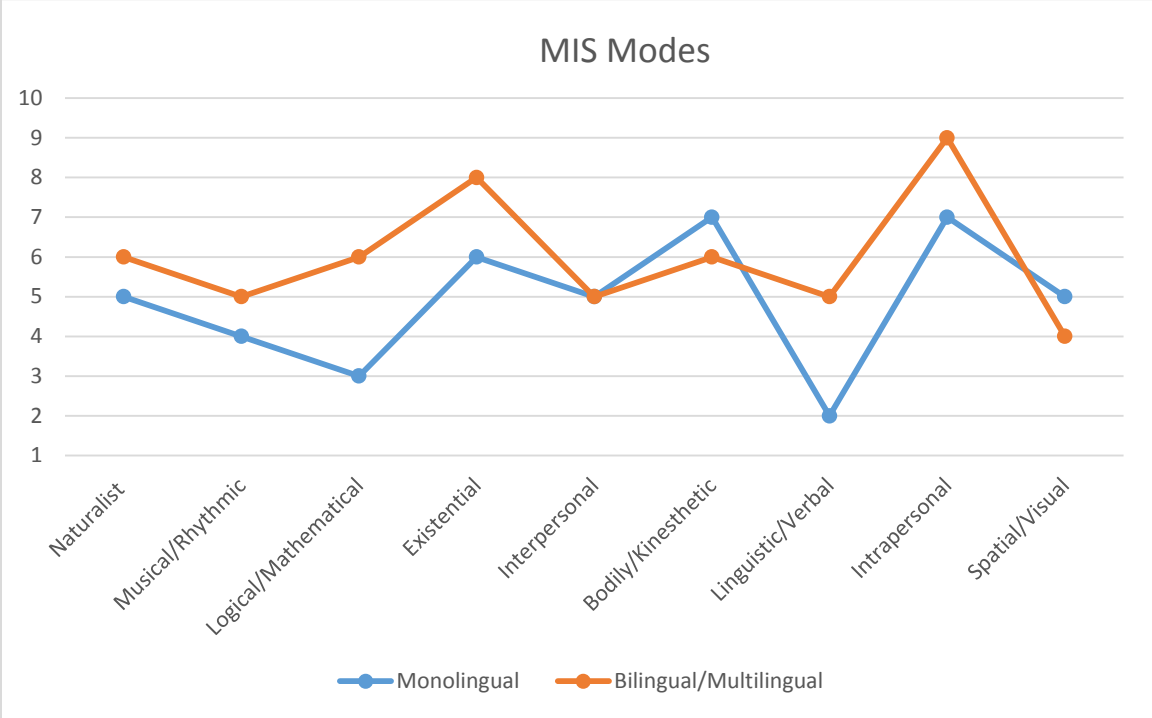

Figure 5. Line Graph 2-5: MIS Modes

MIS Results. The above Figure 5. Line Graph 2-5: MIS Modes has a mode frequency scale of 1 to 10, with 10 being the highest or strongest mode frequency value, and 1 being the lowest or weakest mode frequency value of each intelligence-type. Starting from left to right with the naturalist intelligence-type, there is a subtle difference between the monolingual and bilingual sample groups. The monolingual sample group is at a mid-scale mode frequency of 5, and the bilingual sample group is a mode frequency of 6. The musical/rhythmic intelligence-type results are somewhat similar to the naturalist intelligence-type. The monolingual sample group is a mode frequency of 4, while the bilingual sample group is at mid-scale mode frequency of 5.

There is clearly a notable difference between both sample groups with the logical/mathematical intelligence-type. The line graph shows the monolingual sample group is at a weak mode frequency of 3, and the bilingual sample group is a bit strong with a mode frequency of 6.

Next, we have the existential intelligence-type where the value differences between each sample group are noticeable on the line graph. The monolingual group is a mode frequency of 6, and 8 is the mode frequency of the bilingual group, which is somewhat stronger than the first 3 intelligence-types.

For the interpersonal intelligence-type, the line graph shows no difference between the sample groups. Both groups are at a mid-point on the scale, which is the mode frequency of 5. This is where the sample groups share similar value, which is neither too strong nor too weak in this aspect.

With the bodily/kinesthetic intelligence-type, there is another slight difference between the groups; moreover, the values of the sample groups are reversed on the scale. The monolingual group is somewhat strong with a mode frequency of 7, and the bilingual group is a bit under with a mode frequency of 6.

Another notable difference is with the linguistic/verbal results. The monolingual sample group is weak at a mode frequency of 2, while the bilingual sample group reaches the mid-point with a mode frequency of 5.

Both sample groups are different in the intrapersonal intelligence-type. A rather strong 7 is the mode frequency of the monolingual group. However, the

bilingual group appears stronger with a mode frequency of 9, which is the highest or strongest value of the other listed intelligence-types.

Finally, the spatial/visual intelligence-type is where, once again, the value of the sample groups is reversed on the scale: the monolingual group is at a mid-point mode frequency of 5, and the bilingual group is just below at the mode frequency of 4.

Essentially, in this case, the mode frequency values of each intelligence-type reveal the cultural, social, and emotional climate including the learning preferences of the FYC students in this study. With that said, according to the mode values in Figure 5. Line Graph 2-5: MIS Modes, the cognitive/intelligence nature of both sample groups can be deemed a combination of intrapersonal, existential, and bodily/kinesthetic intelligences.

However, in any case, by nature, each person possesses, at least, two or more strong abilities, talents, and mental skills or intelligences; plus, one or more weak intelligence aspects (Gardner, 2006). Therefore, as indicated above, and in answer to the first question in this study: clearly, the monolingual and bilingual FYC students do have different and similar strengths and weaknesses in cognitive qualities and intelligence-types.

MIS Reliability and Validity. Among the quantitative studies that used the same MIS (McKenzie, 1999, 2003) model applied in this study are titled: The relationship between EFL learners' multiple intelligences and their performance on reasoning-gap writing task[s], by Mahnaz Saeidi and Fahimeh Karvandi

(2014); and, the relationship between EFL learners' multiple intelligences and their performance on information-gap writing task[s] (M. Saeidi and F. Karvandi, 2014). These studies were published in the *International Journal of Language Learning and Applied Linguistics World* (IJLLALW). Both studies reliability and validity of MIS score results were supported via Cronbach's Alpha, with the lowest value at .65 to the highest at .85. The reasoning-gap writing study had a calculated correlation average of .81; and the information-gap writing study had a calculated correlation average of .86. This illustrated the MIS (*Ibid)* model and the calculated results in each of these studies had a high measure of consistency or reliability and validity.

MIALE Results. The following research information involves the MIALE (Armstrong, n.d.) assessment that was employed in this study to address the questions: What are the FYC students learning abilities, literacy, or intelligence patterns? Are the monolingual and bilingual FYC students learning abilities or learning preferences different or similar? Essentially, the sorted results are the sample group's responses to each of the edited statements in this assessment.

Hence, the following are 8 MIALE (Armstrong, n.d.) intelligence charts for each of the intelligences: bodily/kinesthetic, interpersonal, intrapersonal, linguistic/verbal, logical/mathematical, musical/rhythmic, naturalist, and spatial/visual. Each chart is in a 5 point Likert-type scale/bar format, and contains edited statements based on Armstrong's (n.d.) MIALE assessment. There is a standard calculated distribution of the mode frequency based on the selected

number that represents each response by each member of the sample groups. Listed within the 8 charts are 5 choices of answers from the MIALE (Armstrong, n.d.) assessment. These 5 choices of responses are listed, accordingly: 1 = “Not at all”; 2 = “Very little”; 3 = “Somewhat”; 4 = “Pretty much”; and 5 = “Describes exactly.” Based on the 1 to 5 scale mode values, the following 8 bar charts display the calculated modes or scores of validated differences and similarities between both sample groups per each inquiry.

After the 8th bar chart is Table 4: MIALE Reliability and Validity Statistics, which lists Cronbach's Alpha standard statistics results to support the reliability and validity of this adult literacy and education assessment.

The following bar charts begin on the next page with the Figure 6. 5-Scale Bar Chart 1 – Bodily/Kinesthetic that consists of five statements. Four of the five mode frequency responses to these statements are practically similar between both sample groups. For instance, the second and fifth statements are: “I feel really good about being physically fit”; and, “I like to move around a lot” – both groups scored mode 5, which is, “Describes exactly.” The fourth statement is: “My outstanding coordination/balance let me excel in high-speed activities” – each group scored mode 3, which is, “Somewhat.” The third statement: “I have good balance, eye and hand coordination and enjoy sports” – the bilingual group scaled a mode 5, and the monolingual group scaled 4, which is, “Pretty much.”

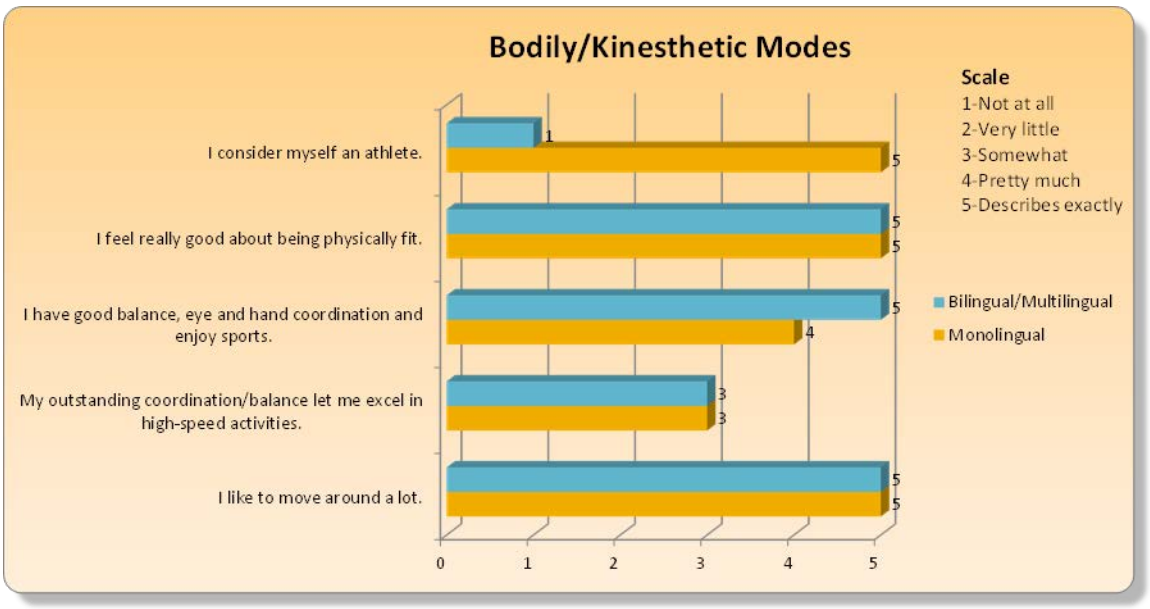

Figure 6. 5-Scale Bar Chart 1 – Bodily/Kinesthetic

Based on the above results, it appears the FYC students learning abilities, literacy, or intelligence patterns coincide within the aspects of this intelligence. Also, their learning preferences are similarly in favor of this intelligence. For example, depending on the FYC students' methods of expression or topic of communication, language use, and writing tasks, FYC students channel or exercise their *embodied* cognition to express or display their *extended* cognition (Atkinson, 2010). Via their *extended* cognition (*Ibid*), the FYC students literacy abilities and learning preferences can involve interests in health, fitness, sports, outdoor activities, and hands-on, tactile activities (Morgan & Fonseca, 2004). FYC students can exercise their intellectual *embodied* and *extended* cognitive (*Ibid*) abilities via dancing, acting, singing, and mime including various kinds of engineering, or the medical industry, and anything that requires non-verbal actions and interactions (Gardner, 2004).

Lastly, in regard to the first statement, there is a noticeable difference in the mode frequency whereas – the monolingual sample group considered themselves to be athletes, while the bilingual sample group did not, this is simply an anomaly. This item does not alter or negate the mode score similarities with this intelligence between the sample groups.

Below in Figure 7. 5-Scale Bar Chart 2 – Interpersonal, four of the eight mode frequency item responses on the scale are the same or similar. With a mode score of 5 on the scale, both groups like to be with different people; they respond to people without bias or prejudice; and, they like individual and team competition. With the fourth item, both groups share a mode score of 3 on the scale, which means they are “Somewhat” concerned with their community and the world.

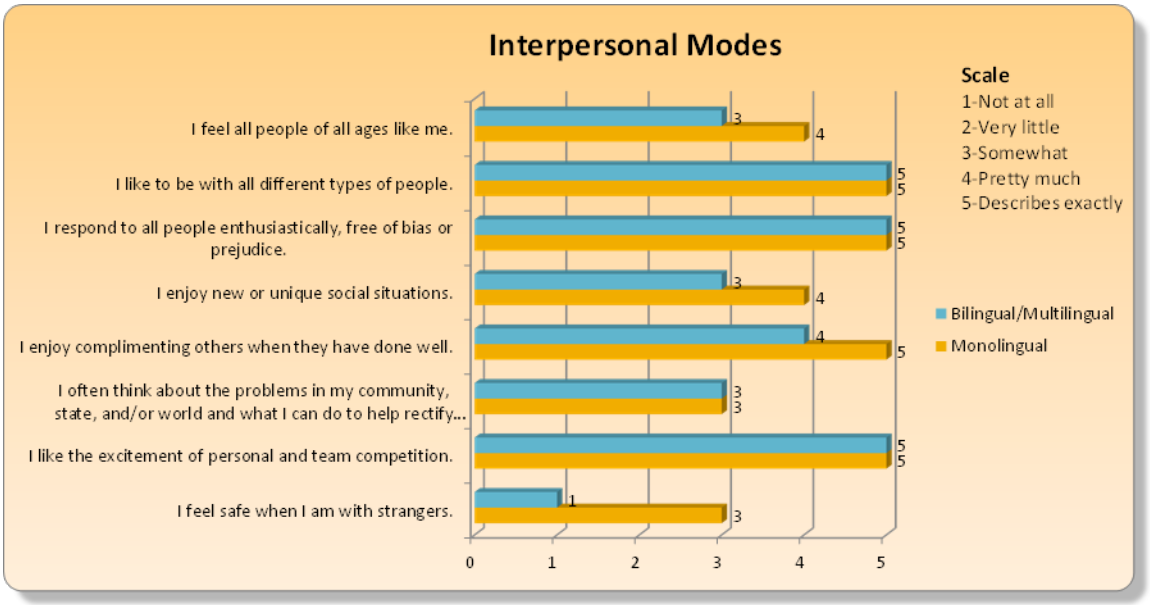

Figure 7. 5-Scale Bar Chart 2 – Interpersonal

Two of the eight responses in Figure 7. 5-Scale Bar Chart 2 are slightly different, but each group has the same score pattern. The bilingual sample group has a mode score of 3 for the two following statements: they feel “Somewhat” liked by people; and they “Somewhat” enjoy new social situations. The monolingual sample group has a mode score of 4, which is: they feel “Pretty much” liked by people; and they “’Pretty much” enjoy new social situations.

Next, the bilingual group has a score of 4, and the monolingual group has a score of 5 for the item/statement that reads: “I enjoy complimenting others when they’ve done well.” With this statement, both groups are either a bit similar, or just a tad different with complimenting others. Finally, both groups differ with their response to the last item/statement, which indicates the bilingual group does not feel safe around strangers – and their score is 1. The monolingual group feels “Somewhat” safe around strangers – and their score is 3.

At this point, it seems as if the FYC students learning and literacy abilities and intelligence patterns are mixed: they can be considered partly similar and moderately different. Based on these results, their learning preferences of social interaction are average in this area. Essentially, these mixed or diverse score results reflect the FYC students patterns of development for processing social communication, or whether to socialize at all. For example, as freshman college students, they may be faced with deciding how to associate with new classmates, or whether to simply watch others instead of interact.

I must add that interpersonal and intrapersonal are considered the personal intelligences, or what I consider as the metacognitive attributes. Either or both are likely to have more varied responses than the other intelligences (Gardner, 2004).

Morgan and Fonseca (2004) suggest cooperative learning methods to facilitate engaging communication and social interaction – in an effort to promote literacy and writing skills. Kezar (2001) and Gardner recommend collaborative and community teaching/learning methods to enhance cultural, emotional, and social awareness in postsecondary education, particularly, for interpersonal and intrapersonal intelligences.

On the next page is Figure 8. 5-Scale Bar Chart 3 – Intrapersonal, which is the other personal intelligence. Six of the eight response scores are the same from both sample groups, and two of the eight response scores are different. For the first statement, the bilingual group scored a 3, which indicates, they "Somewhat" agree that they often look for weaknesses in themselves that they see in others. The monolingual group scored 1, which means, they do not often look for weaknesses in themselves that they see in others. The next difference between the sample groups is their response to the seventh statement, where the bilingual group scored 5 for always being totally honest with themselves; and the monolingual group scored 3 for always being "Somewhat" totally honest with themselves.

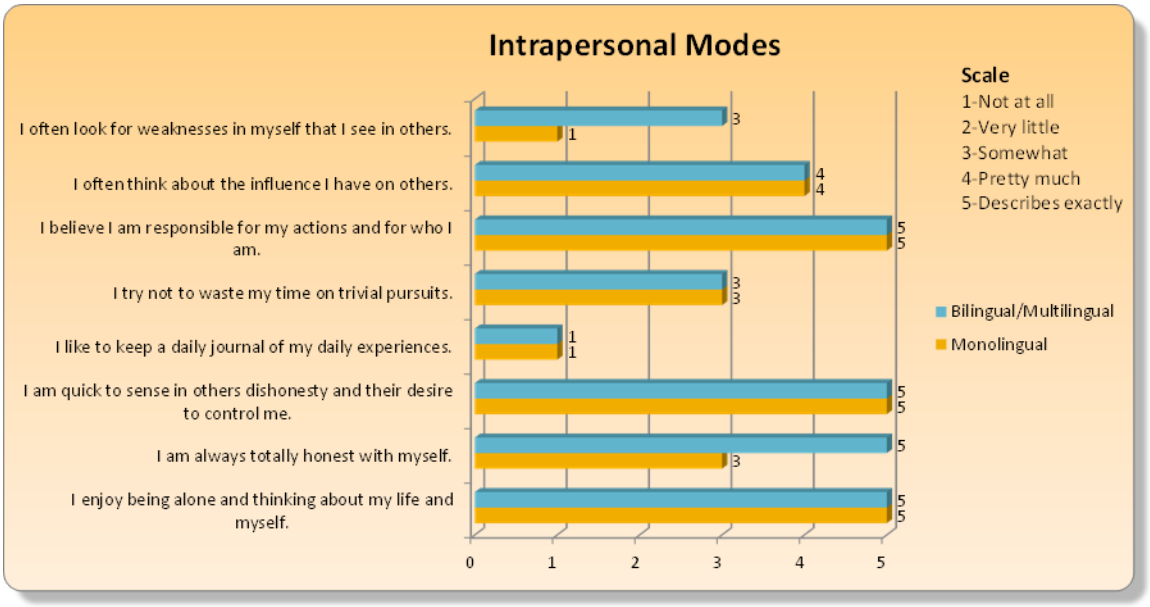

Figure 8. 5-Scale Bar Chart 3 – Intrapersonal

Both sample groups in the above chart score a 4 with their response to the statement: they “Pretty much” often think about the influence they have on others. The sample groups scored 5 with their response, which describes them exactly in believing they are responsible for their actions and for who they are. With the next statement, both groups score a 3, which indicates they feel “Somewhat” about trying not to waste time on trivial pursuits. Next, both groups scored 1 on the scale for not keeping a daily journal of their daily experiences. Lastly, each group scored 5 for being described exactly in the two following statements: I am quick to sense in others dishonesty and their desire to control me; and I enjoy being alone and thinking about my life and myself.

The mode results for this intelligence shows these FYC students are cognizant of their inner-selves. Their learning abilities, literacy, or intelligence patterns appear to be mostly in sync in this aspect. Also, their learning

preferences are more similar than different, particularly, when it concerns their self-discipline, self-perception, personal emotions, and their identity.

However, the aspects of this intelligence can be strengthened by encouraging competent and multicompetent students to write about or create some form of communication to share their feelings, values, and ideas. To engage or challenge them via real-life problem-solving, critical-thinking, and other student-based, student-centered teaching/learning activities will aid in developing their talents for possibly becoming authors, commentators, lyricists, poets, or journalists, even inspirational or motivational speakers and writers.

The next page is Figure 9. 5-Scale Bar Chart 4 – Linguistic/Verbal, which appears to have four out of six responses that are fairly similar, and two responses with subtle and obvious differences. Both sample groups “Somewhat” pride themselves on having a large vocabulary, based on their mode score of 3. The sample groups share the same score of 2 for having “Very little” interest in reading; and both groups have the same score of 1 for not enjoying reading and writing poetry. With the same score of 5, which describes them exactly, both groups like to talk and enjoy telling stories.

As for the two differences, the first one is a score of 3 for the bilingual sample group for “Somewhat” enjoying learning new words; and for the same statement, the monolingual groups’ score response is 2 for “Very little” interest in learning new words. In this area there is a slight difference between the groups. The second difference between the groups is with the bilingual group’s score of 3

for their response to: “Somewhat” enjoying challenging lectures; while the monolingual sample group has a score of 1 for not enjoying challenging lectures.

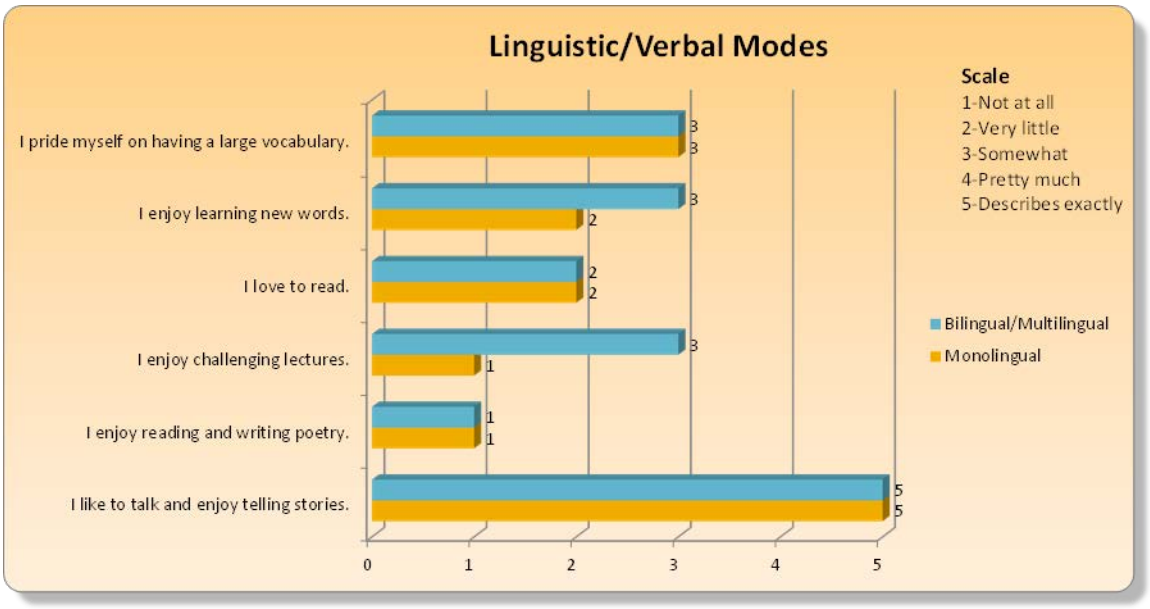

Figure 9. 5-Scale Bar Chart 4 – Linguistic/Verbal

Clearly, in this intelligence area, the bilingual and monolingual sample groups have the same strong verbal communication abilities, and they have the same weak cognitive patterns with learning and literacy. Their learning preferences are similar, but again, weak in this area. As FYC students, they need to learn the fundamental values of reading and writing, of language arts and rhetoric – to broaden or expand their cultural, social awareness, metacognition, and educational skills. For instance, in composition/writing activities, monolingual and bilingual students can learn to effectively apply their codeswitching, their BICS (basic interpersonal communication skills) (Cummins, 1999), and develop or exercise their CALP (cognitive academic language proficiency) (*Ibid*).

Below, notice in Figure 10. 5-Scale Bar Chart 5 – Logical/Mathematical – where the FYC sample groups had the same response for five out of six statements. The first response received a mode score of 3 from both groups, which indicates it is “Somewhat” easy for the students to use numbers/numerical symbols. The remaining four statements received a score of 1, which is the “Not at all” response to the following: they do not see mathematical ratios in the world around them; math has not always been one of their favorite classes; they do not like to think about numerical issues and examine statistics; and they do not seem to understand things around them through a mathematical sense.

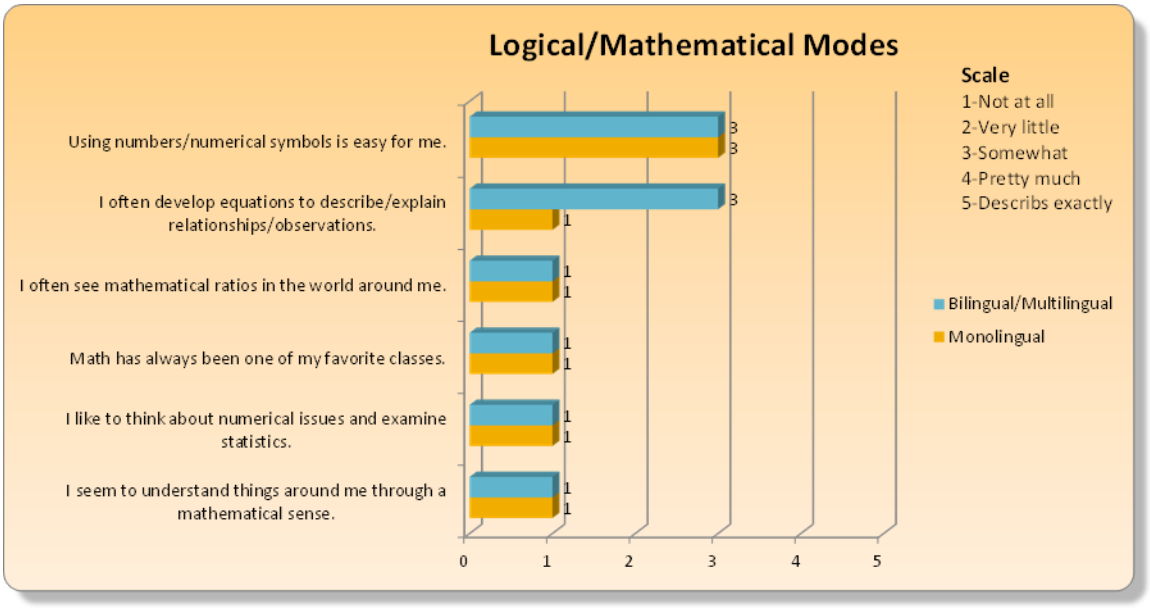

Figure 10. 5-Scale Bar Chart 5 – Logical/Mathematical

The second statement is the only one that shows a difference between the sample groups, and that statement reads: “I often develop equations to describe/explain relationships/observations.” The bilingual groups’ response to

the above statement scored 3 for “Somewhat”; and the monolingual groups’ response is 1 for – “Not at all.”

Obviously, these FYC students are not fond of math because each group shares the same lack of interest in learning or applying logic/math related approaches. Their cognitive patterns, in this sense, are the same, as well as, their learning preferences.

Of all the intelligence mode bar charts, it appears the above logical/mathematical is the weakest area among these FYC students. To ascertain some level of improvement can involve extended cognitive-based teaching/learning approaches. Approaches such as student-based, student-centered analytical and investigating activities, problem-solving and reasoning strategies, or topics that include information or research technology, web-quests, or examining various types of social media (Atkinson, 2010; Morgan & Fonseca, 2004).

On the next page is Figure 11. 5-Scale Bar Chart 6 – Musical/Rhythmic, where six of the seven mode score responses are the same among the sample groups. Notice a score of 5 that describes both groups exactly in response to the following first and second statements: music is very important to me in my daily life; and I have wide and varied musical interests including classical and contemporary. Their response to the third statement scored 3, whereby, they believe or feel “Somewhat” about having a very good sense of pitch, tempo, and rhythm. Statements four, five and seven have a “Not at all” response score of 1.

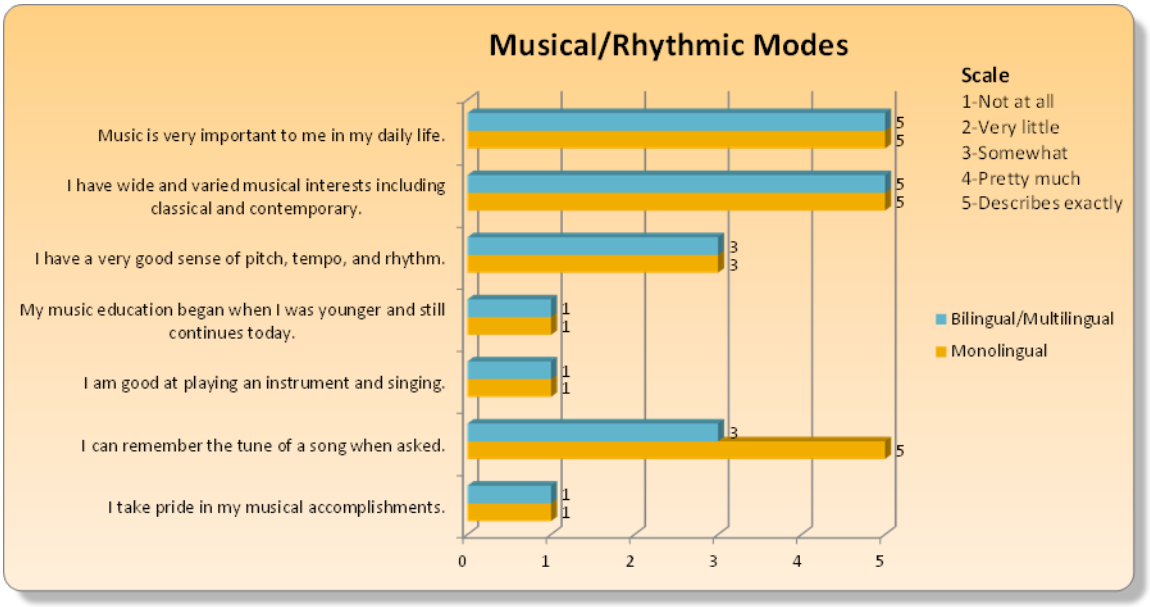

Figure 11. 5-Scale Bar Chart 6 – Musical/Rhythmic

Members of the sample groups did not begin music education when they were younger…; the group members are not good at playing an instrument and singing; and, these FYC students do not take pride in any musical accomplishments.

The response to statement six is the only one that shows a difference. The bilingual group scored 3, which indicates they can “Somewhat” remember the tune of a song when asked; and the monolingual group scored 5, which means this statement describes them exactly.

The FYC sample groups share the same intelligence patterns of learning and literacy based on their overall responses. Although this is not quite their learning preference because half of their responses were negative, while slightly more than half of their scores were positive, there is still a fundamental interest and connection with music and rhythm among the members of the sample

groups. For instance, via their *embodied* cognition (Atkinson, 2010), various kinds of musical-rhythms can activate the senses of the brain, especially, the language-based areas. Listening to music while writing can stimulate creativity, memory, and other thought processes connected with interpersonal and intrapersonal intelligences (Gardner, 1998, 1999, 2008).

On the following page, Figure 12. 5-Scale Bar Chart 7 – Naturalist is the only intelligence in this study where there are no differences and no anomalies between the sample groups. Each of the mode scale responses to eight items are/is similar for both the bilingual and monolingual sample groups. Beginning with the first statement: “The world of plants and animals are important to me” – the members of both groups feel “Somewhat” about this with a score of 3. The second item: “I enjoy my pets" – this “Describes exactly” the members of both groups with a score of 5. The third item: “I like learning about nature” – the members of both groups score 3, again, this is another “Somewhat” response. Fourth item: “I enjoy caring for my house plants” – the members of both groups do not enjoy caring for house plants, and scored 1.

This fifth statement coincides and reflects the similar high mode score results in the Figure 6. 5-Scale Bar Chart 1 – Bodily/Kinesthetic. The fifth statement reads: “I enjoy being outdoors, the change in seasons, and I look forward to different physical activities each season” – both groups scored 5. Notice in the bodily/kinesthetic bar chart, which is the first one in this series of 8

charts, the coinciding statements are: “I feel really good about being physically fit”; and, “I like to move around a lot.”

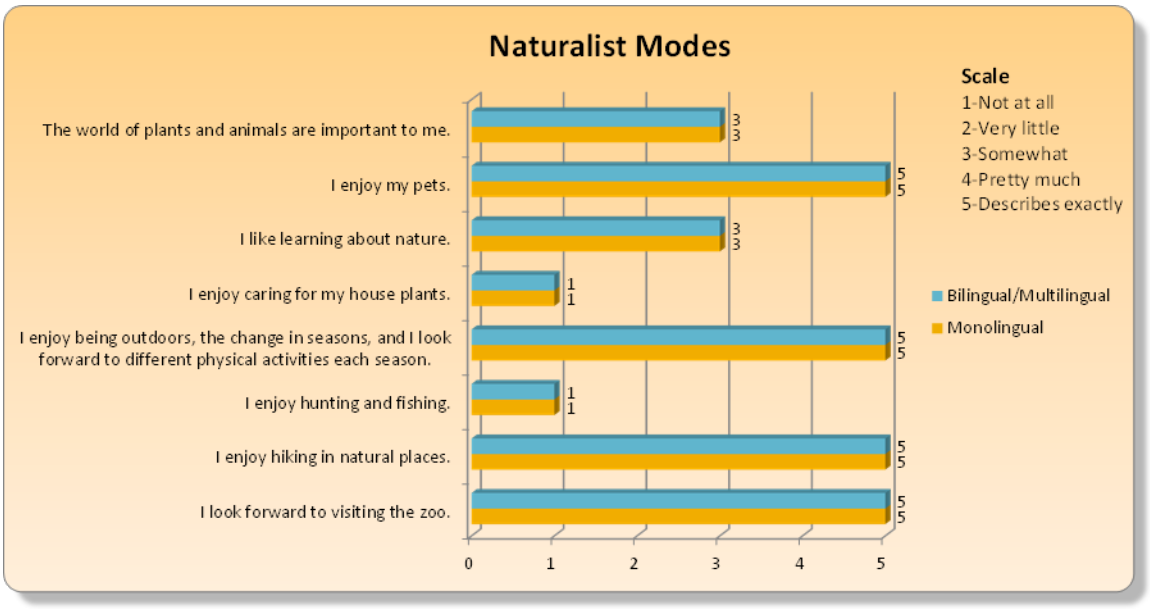

Figure 12. 5-Scale Bar Chart 7 – Naturalist

Although the results of the sixth statement in the above chart indicate the members of either sample group do not enjoy hunting or fishing, six out of the eight modes share a similar pattern favorable with the aspects of this intelligence. Finally, the last two statements, once again, coincide or reflect the mode responses that are in the bodily/kinesthetic bar chart. The two statements are: “I enjoy hiking in natural places”; and, “I look forward to visiting the zoo” – 5 is the mode scale from both sample groups, which is, “Describes exactly.”

Other than not enjoying house plants, hunting and fishing, these monolingual and bilingual sample group members appear to align with the aspects of this intelligence. The patterns of their responses show similar consistency, particularly, in regard to their mode scores in this naturalist

intelligence chart and the bodily/kinesthetic intelligence chart. It also appears these FYC students share similar learning preferences with the aspects of this naturalist intelligence.

Considering the aforementioned, the results in Figure 12. 5-Scale Bar Chart 7 - Naturalist, FYC students studies and writing interests can involve local, national, and international environmental developments and ideas, scenes in nature, animals, road trips, and field observations (Gardner, 1999; Fogarty & Stoehr, 2008; Maftoon & Sarem, 2012). The teaching/learning applications and practices can include compare and contrast, categories, classifications, sequences, research chronicles, logs, maps, and graphs (McKenzie, 2009).

And last, but not least, on the next page is Figure 13. 5-Scale Bar Chart 8 – Spatial/Visual, which seems to reflect the results in the previous Figure 9. 5-Scale Bar Chart 4 – Linguistic/Verbal. For instance, the first statement: “I always know where I am in relation to my home” – is a mode scale of 5 for both groups, which describes them exactly – and this is the only strong aspect between the sample groups. The remaining seven statements have modes that range from mostly “Not at all” to “Somewhat.”

In comparing the mode patterns of this intelligence with the other intelligences, the linguistic/verbal contains similar weak areas between both sample groups. The mode results show this is not a favored learning preference among the FYC students.

However, to perhaps develop or improve the aspects of this spatial/visual intelligence, by providing visual aids to comprehend, decipher, examine, discuss, and to facilitate demonstrating writing projects—could engage or challenge the FYC students (Gardner, 1998, 1999, 2008; Morgan & Fonseca, 2004).

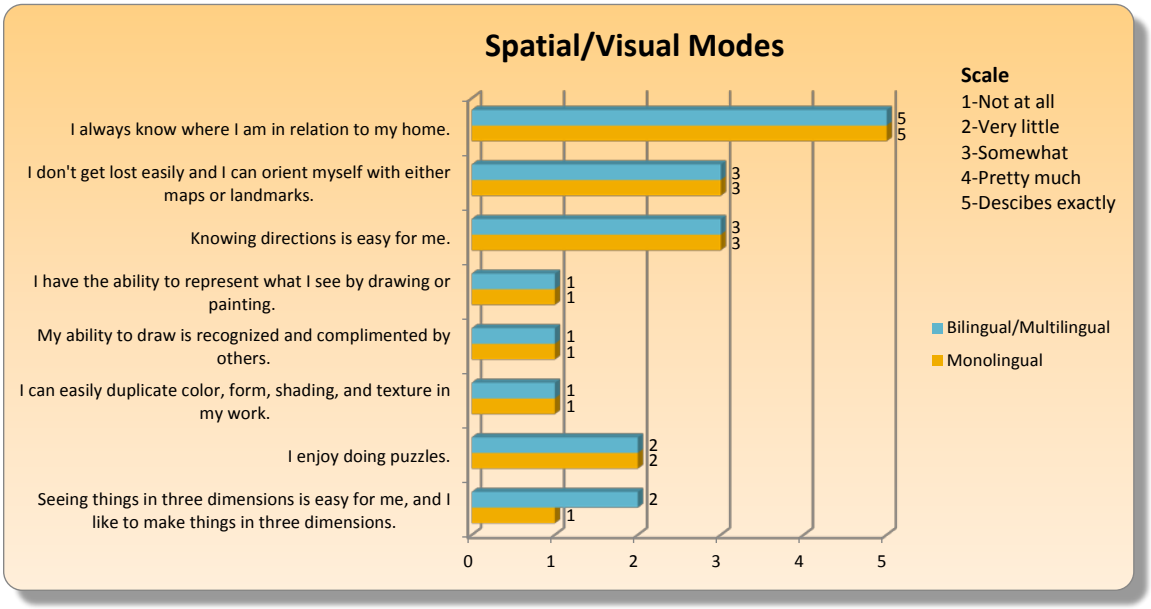

Figure 13. 5-Scale Bar Chart 8 – Spatial/Visual

MIALE Reliability and Validity Statistics. Beginning on the next page is Table 4 that lists the MIALE reliability and validity statistics for the aforementioned 8 intelligences bar charts. The Cronbach alpha levels were rounded to the most measures utilized. Seven of the eight intelligences averaged good internal reliability and validity. However the intrapersonal intelligence had relatively low internal reliability and validity via Cronbach's alpha. Although the alphas of most of the intelligences items were stable, the intrapersonal intelligence alpha was low because of the context or wording of a statement. For instance, one statement was "double-barreled" (L. Chesus,

personal communication, 2018), which means the item contains two separate claims or inquiries.

Table 4: MIALE Reliability and Validity Statistics

Intelligences	Cronbach's Alpha	Number of Items
Bodily/Kinesthetic	.82	5
Interpersonal	.61	8
Intrapersonal	.52	8
Linguistic/Verbal	.74	6
Logical/Mathematical	.84	6
Musical/Rhythmic	.85	7
Naturalist	.73	8
Spatial/Visual	.75	8

Conclusion

The compressed MIS survey results in this study show both sample groups share similar mid-scale modes in naturalistic, musical/rhythmic, interpersonal, bodily-kinesthetic and spatial/visual intelligences. This means the FYC sample groups have average cognitive strengths and weaknesses in five of the aforementioned intelligences. In the logical/mathematical and linguistic/verbal intelligences, the sample groups are notably different – as the bilingual/multilingual students are stronger in these intelligence-types than the

monolingual students. The remaining areas: existential and intrapersonal appear to be strong areas for both sample groups.

The sorted detailed MIALE results reveal the FYC sample groups interests, motivational aspects, and what can engage their literacy and writing abilities. In this case, their patterns of intelligence, literacy, and learning preferences are most favorable in the bodily/kinesthetic, interpersonal, intrapersonal, and naturalistic intelligences. The remaining four intelligence areas are somewhat less favorable.

Theoretically, Cook's *multicompetence* involves differences between bilinguals and monolinguals, and his concept emphasizes that deficiencies are not a factor in the differences between L1 and L2 speakers/users. The implications in regard to Cook's concept involve knowledge-based differences between monolingual and bilingual students (Hall, Cheng, & Carlson, 2006).

Gardner's MI concept deems there are differences and similarities; however, whether bilingual or monolingual, these studies reveal competence and multicompetence exists within areas of cognitive aspects or levels of intelligences among many students. It is important to note, the assessments in this study that are based on Armstrong's (n.d.) MIALE and McKenzie's (1999) MIS – represent each participant's self-perception. The responses of the sample groups are how they perceive themselves to be, and not how they may actually be (W. Smith, personal communication, 2019).

Nevertheless, in essence, the significance of this study, its research, and the coupling of such theories is an effort to share a pedagogical perception that embraces the increasing population of multiculturalism and nonnative U.S. English speakers who are students in higher education, especially in composition/writing courses (Barrington, 2004; Canagarajah, 2006; Matsuda, 1999; Valdés, 1992, et al.). To exercise new approaches that include cooperative, collaborative, community and social learning methods in a student-based and student-centered environment will engage most students' intelligences, whether strong or weak, different or similar. Moreover, via hybrid or technological approaches, it is vital to enhance the diverse literacy levels of FYC students (Gardner, 2006; Kezar, 2001). For instance, Armstrong (2003) suggests the importance of connecting literacy to cognitive activity via teaching/learning environments cultivated with music, art, nature, math/logic, performing arts, speeches or orations, cultural, social and emotional expressions and interactions.

Ultimately, as we are different in many ways, we are just as similar. Based on *The Educational Theory of Jean-Jacques Rousseau* (Boyd, 1963) – we are born with strengths and weaknesses; and whatever is not innate, or whatever we do not receive in our lives as we grow, can be given to us via diverse/liberal facets of education.

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL LETTER

(IRB)

CALIFORNIA STATE UNIVERSITY
SAN BERNARDINO

Academic Affairs
Office of Academic Research • Institutional Review Board

March 02, 2015

CSUSB INSTITUTIONAL REVIEW BOARD
Administrative Review
IRB# 14062
Status
APPROVED

Ms. Patricia Rice-Daniels and Prof. Caroline Vickers
Department of English
California State University, San Bernardino
5500 University Parkway
San Bernardino, California 92407

Dear Ms. Rice-Daniels and Prof. Vickers:

Your application to use human subjects, titled, "Multicompetence, Multiple Intelligences and First-Year English Composition Students" has been reviewed and approved by the Chair of the Institutional Review Board (IRB) of California State University, San Bernardino has determined that your application meets the requirements for exemption from IRB review Federal requirements under 45 CFR 46. As the researcher under the exempt category you do not have to follow the requirements under 45 CFR 46 which requires annual renewal and documentation of written informed consent which are not required for the exempt category. However, exempt status still requires you to attain consent from participants before conducting your research.

The CSUSB IRB has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval notice does not replace any departmental or additional approvals which may be required.

Your responsibilities as the researcher/investigator reporting to the IRB Committee include the following 4 requirements as mandated by the Code of Federal Regulations 45 CFR 46 listed below. Please note that the protocol change form and renewal form are located on the IRB website under the forms menu. Failure to notify the IRB of the above may result in disciplinary action. You are required to keep copies of the informed consent forms and data for at least three years. Please notify the IRB Research Compliance Officer for any of the following:

- **Submit a protocol change form if any changes (no matter how minor) are proposed in your research prospectus/protocol for review and approval of the IRB before implemented in your research,**
- **If any unanticipated/adverse events are experienced by subjects during your research, and**
- **When your project has ended by emailing the IRB Research Compliance Officer.**

If you have any questions regarding the IRB decision, please contact Michael Gillespie, the IRB Research Compliance Officer. Mr. Michael Gillespie can be reached by phone at (909) 537-7588, by fax at (909) 537-7028, or by email at mgillesp@csusb.edu. Please include your application approval identification number (listed at the top) in all correspondence.

Best of luck with your research.

Sincerely,

Judy Sylva

Judy Sylva, Ph.D.

IRB Chair, CSUSB Institutional Review Board

JS/mg

cc:

909.537.7588 • fax: 909.537.7028 • http://irb.csusb.edu/
5500 UNIVERSITY PARKWAY, SAN BERNARDINO, CA 92407-2393

APPENDIX B

MULTIPLE INTELLIGENCES SURVEY (MIS)

MULTIPLE INTELLIGENCES SURVEY (MIS)

Complete each section by placing a number '1' next to each statement you feel accurately describes you. If you do not identify with a statement, leave the space provided blank.

Section 1 (Check all that apply)

_____ I enjoy categorizing things by common traits

_____ Ecological (environmental, natural/organic) issues are important to me

_____ Classification (grouping or sorting) helps me make sense of new data

_____ I enjoy working in a garden

_____ I believe preserving our National Parks is important

_____ Putting things in hierarchies (in order) makes sense to me

_____ Animals are important in my life

_____ My home has a recycling system in place

_____ I enjoy studying biology, botany and/or zoology

_____ I pick up on subtle (delicate, sensitive, or tricky) differences in meaning

_____ TOTAL for Section 1

Section 2 (Check all that apply)

_____ I easily pick up on patterns

_____ I focus in on noise and sounds

_____ Moving to a beat is easy for me

_____ I enjoy making music

_____ I respond to the cadence (rhythm, tempo, or beat) of poetry

_____ I remember things by putting them in a rhyme

_____ Concentration is difficult for me if there is background noise

_____ Listening to sounds in nature can be very relaxing

_____ Musicals are more engaging (pleasing, likeable) to me than dramatic plays

_____ Remembering song lyrics is easy for me

_____ TOTAL for Section 2

Section 3 (Check all that apply)

_____ I am known for being neat and orderly

_____ Step-by-step directions are a big help

_____ Problem solving comes easily to me

_____ I get easily frustrated with disorganized people

_____ I can complete calculations quickly in my head

_____ Logic puzzles are fun

_____ I can't (cannot) begin an assignment until I have all my 'ducks in a row' (have everything I need organized for my assignment)

_____ Structure is a good thing

_____ I enjoy troubleshooting something that isn't working properly

_____ Things have to make sense to me or I am dissatisfied

_____ TOTAL for Section 3

Section 4 (Check all that apply)

_____ It is important to see my role in the 'big picture' of things

_____ I enjoy discussing questions about life

_____ Religion is important to me

_____ I enjoy viewing art work

_____ Relaxation and meditation exercises are rewarding to me

_____ I like traveling to visit inspiring places

_____ I enjoy reading philosophers

_____ Learning new things is easier when I see their real world application (applied to real-life situations)

_____ I wonder if there are other forms of intelligent life in the universe

_____ It is important for me to feel connected to people, ideas and beliefs

_____ TOTAL for Section 4

Section 5 (Check all that apply)

_____ I learn best interacting with others

_____ I enjoy informal chat and serious discussion

_____ The more people the merrier

_____ I often serve as a leader among peers and colleagues

_____ I value relationships more than ideas or accomplishments

_____ Study groups are very productive for me

_____ I am a 'team player'

_____ Friends are important to me

_____ I belong to more than three clubs or organizations

_____ I dislike working alone

_____ TOTAL for Section 5

Section 6 (Check all that apply)

_____ I learn by doing (hands-on)

_____ I enjoy making things with my hands

_____ Sports are a part of my life

_____ I use gestures (my hands) and non-verbal cues when I communicate

_____ Demonstrating is better than explaining

_____ I love to dance

_____ I like working with tools

_____ Inactivity can make me more tired than being very busy

_____ Hands-on activities are fun

_____ I live an active lifestyle

_____ TOTAL for Section 6

Section 7 (Check all that apply)

_____ Foreign languages interest me

_____ I enjoy reading books, magazines and web sites

_____ I keep a journal

_____ Word puzzles like crosswords or jumbles are enjoyable

_____ Taking notes helps me remember and understand

_____ I faithfully contact friends through texting and/or e-mail, or social media cites

_____ It is easy for me to explain my ideas to others

_____ I write for pleasure

_____ Puns, anagrams (word games) and spoonerisms (correcting mistakes) are fun

_____ I enjoy public speaking and participating in debates

_____ TOTAL for Section 7

Section 8 (Check all that apply)

_____ My attitude effects how I learn

_____ I like to be involved in causes that help others

_____ I am keenly aware of my moral beliefs (what I believe is right or wrong)

_____ I learn best when I have an emotional attachment to the subject

_____ Fairness is important to me

_____ Social justice issues interest me

_____ Working alone can be just as productive as working in a group

_____ I need to know why I should do something before I agree to do it

_____ When I believe in something I give more effort towards it

_____ I am willing to protest or sign a petition to right a wrong

_____ TOTAL for Section 8

Section 9 (Check all that apply)

_____ I can visualize ideas in my mind

_____ Rearranging a room and redecorating are fun for me

_____ I enjoy creating my own works of art

_____ I remember better using graphic organizers

_____ I enjoy all kinds of entertainment media

_____ Charts, graphs and tables help me interpret data

_____ A music video can make me more interested in a song

_____ I can recall things as mental pictures

_____ I am good at reading maps and blueprints

_____ Three (3) dimensional puzzles are fun

_____ TOTAL for Section 9

1. What is your first (native) language? (Please circle one of the following):
   English Spanish French Chinese Japanese Arabic

   Other (please specify)_____

2. What other language(s) do you speak/use? (Please circle any of the following that apply): None

English Spanish French Korean Chinese Japanese Arabic

Other language(s) (please specify) _____

3. What is your ethnicity? (Please circle any of the following choices that apply to you) – are you:

African-American Black-American Latin-American Native-American

Hispanic Filipino West Indian Puerto Rican Asian-American

Chinese Japanese Korean Arabic East Indian Middle-Eastern

Eastern-European White-American

Other (please specify) _____

4. Please write your age: _____

(Adopted from McKenzie, 1999)

APPENDIX C

MULTIPLE INTELLIGENCES FOR ADULT LITERACY AND EDUCATION (MIALE)

MULTIPLE INTELLIGENCES FOR ADULT LITERACY AND EDUCATION
(MIALE)

Instructions: Read each statement carefully. Choose one of the five circles with a check mark √ or an 'X' for each statement indicating how well that statement describes you.

1 = Statement **does not describe** you at all
2 = Statement **describes you very little**
3 = Statement **describes you somewhat**
4 = Statement **describes you pretty well**
5 = Statement describes **you exactly**

	1	2	3	4	5
1. I pride myself on having a large vocabulary.	●	●	●	●	●
2. Using numbers and numerical symbols is easy for me.	●	●	●	●	●
3. Music is very important to me in daily life.	●	●	●	●	●
4. I always know where I am in relation to my home.	●	●	●	●	●
5. I consider myself an athlete.	●	●	●	●	●
6. I feel like people of all ages like me.	●	●	●	●	●
7. I often look for weaknesses in myself that I see in others.	●	●	●	●	●
8. The world of plants and animals is important to me.	●	●	●	●	●
9. I enjoy learning new words and do so easily.	●	●	●	●	●

10. I often develop equations to describe relationships and/or to explain my observations.	●	●	●	●	●
11. I have wide and varied musical interests including both classical and contemporary.	●	●	●	●	●
12. I do not get lost easily and can orient myself with either maps or landmarks.	●	●	●	●	●
13. I feel really good about being physically fit.	●	●	●	●	●
14. I like to be with all different types of people.	●	●	●	●	●
15. I often think about the influence I have on others.	●	●	●	●	●
16. I enjoy my pets.	●	●	●	●	●
17. I love to read and do so daily.	●	●	●	●	●
18. I often see mathematical ratios in the world around me.	●	●	●	●	●
19. I have a very good sense of pitch, tempo, and rhythm.	●	●	●	●	●
20. Knowing directions is easy for me.	●	●	●	●	●
21. I have good balance and eye-hand coordination and enjoy sports which use a ball.	●	●	●	●	●

22. I respond to all people enthusiastically, free of bias or prejudice.	●	●	●	●	●
23. I believe that I am responsible for my actions and who I am.	●	●	●	●	●
24. I like learning about nature.	●	●	●	●	●
25. I enjoy hearing challenging lectures.	●	●	●	●	●
26. Math has always been one of my favorite classes.	●	●	●	●	●
27. My music education began when I was younger and still continues today.	●	●	●	●	●
28. I have the ability to represent what I see by drawing or painting.	●	●	●	●	●
29. My outstanding coordination and balance let me excel in high-speed activities.	●	●	●	●	●
30. I enjoy new or unique social situations.	●	●	●	●	●
31. I try not to waste my time on trivial pursuits.	●	●	●	●	●
32. I enjoy caring for my house plants.	●	●	●	●	●
33. I like to keep a daily journal of my daily experiences.	●	●	●	●	●
34. I like to think about numerical issues and examine statistics.	●	●	●	●	●

35. I am good at playing an instrument and singing.	●	●	●	●	●
36. My ability to draw is recognized and complimented by others.	●	●	●	●	●
37. I like being outdoors, enjoy the change in seasons, and look forward to different physical activities each season.	●	●	●	●	●
38. I enjoy complimenting others when they have done well.	●	●	●	●	●
39. I often think about the problems in my community, state, and/or world and what I can do to help rectify any of them.	●	●	●	●	●
40. I enjoy hunting and fishing.	●	●	●	●	●
41. I read and enjoy poetry and occasionally write my own.	●	●	●	●	●
42. I seem to understand things around me through a mathematical sense.	●	●	●	●	●
43. I can remember the tune of a song when asked.	●	●	●	●	●
44. I can easily duplicate color, form, shading, and texture in my work.	●	●	●	●	●
45. I like the excitement of personal and team competition.	●	●	●	●	●

46. I am quick to sense in others dishonesty and desire to control me.	●	●	●	●	●
47. I am always totally honest with myself.	●	●	●	●	●
48. I enjoy hiking in natural places.	●	●	●	●	●
49. I talk a lot and enjoy telling stories.	●	●	●	●	●
50. I enjoy doing puzzles.	●	●	●	●	●
51. I take pride in my musical accomplishments.	●	●	●	●	●
52. Seeing things in three dimensions is easy for me, and I like to make things in three dimensions.	●	●	●	●	●
53. I like to move around a lot.	●	●	●	●	●
54. I feel safe when I am with strangers.	●	●	●	●	●
55. I enjoy being alone and thinking about my life and myself.	●	●	●	●	●
56. I look forward to visiting the zoo.	●	●	●	●	●

(Adopted from T. Armstrong, n.d.)

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